A Clinical Lecture
ON
MITRAL DISEASE.

Delivered in the Glasgow Royal Infirmary,

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GENTLEMEN,—In the wards at present there are under treatment no less than 10 cases of disease of the mitral valve, and I propose this morning to make them the subject of a clinical lecture upon this affection. Of the 10 cases, nine are in the female ward; and six of them are very definitely associated with acute rheumatism as a causal factor. In the first place I shall read to you short summaries of the clinical histories, and in the second I shall direct your attention to the signs and symptoms of mitral disease which are illustrated by them.[1]

CASE 1.—A married woman, aged 24 years, was admitted on Oct. 13th, 1899, suffering from acute rheumatism of three weeks' duration, the present being the second attack. The first attack occurred three and a half years previously and lasted with remissions for several months. There is in this case a very decided family tendency to rheumatic fever. The father and a brother of the patient have had acute rheumatism, and another brother died from chorea and mitral endocarditis in Ward 12 of this infirmary. On admission the patient had moderate pyrexia and the left knee, the right shoulder, and the left breast were the seat of pain and swelling. The pulse has ranged between 80 and 90 per minute and has been regular in force and rhythm and of good tension. There is a soft V.S. murmur at the apex without evidence of cardiac enlargement.

CASE 2.—The patient, aged 37 years, married, was admitted on Oct. 23rd, 1899, suffering from mitral regurgitation, accompanied by dull præcordial pain, palpitation, and occasional faintness of nine weeks' duration. The present illness originated after her last confinement, nine weeks ago, when she began to suffer from shortness of breath, cough, and expectoration of pus and blood. She has not been much out of bed since the confinement, which was very laborious. She has been married for five years and has had three children. She suffered from rheumatic fever 15 years ago and was ill for three months. The apex beat is diffused and is situated in the fifth interspace, four and a half inches to the left of the middle line. There is a loud V.S. murmur at the apex and the second sound is reduplicated at the base. In the third left interspace and in the tricuspid area a V.D. murmur is heard as well as the V.S. With the exception of slight bronchial catarrh the lungs are normal. The pulse is small, easily compressed, and averages from 65 to 70 per minute.

CASE 3.—The patient, a married woman, aged 27 years, was admitted on Sept. 19th, 1899, suffering from mitral regurgitation of rheumatic origin. The illness is of five months' duration and has been characterised chiefly by increasing dyspnœa and œdema of the lower limbs. Her first confinement took place about one month after the onset of the illness, and although the labour was easy it gave no relief to the shortness of breath and the cough from which she also suffers. She had an attack of acute rheumatism 15 years ago and was six weeks ill. The family history is negative. The pulse averages between 85 and 90, but was much more rapid at the time of admission. It is somewhat irregular in force and rhythm. The apex beat is situated in the fifth interspace, about five inches to the left of the middle line, and the cardiac area is enlarged both to the right and the left. A musical V.S. murmur is heard over the apex beat and in the fourth left interspace V.S. and V.D. murmurs are audible. These murmurs are not heard in the aortic area and very faintly in the tricuspid area. The second sound is accentuated in the pulmonic area.

CASE 4.—A girl, aged 12 years, was admitted on Oct. 19th, 1899, suffering from mitral regurgitation and obstruction of at least 13 or 14 months' duration. She suffered from chorea between the ages of five and seven years. She was admitted to the infirmary on Oct. 14th, 1898, suffering from great breathlessness of two or three weeks' duration and with signs of well-marked mitral regurgitation. She was dismissed after six weeks somewhat improved. She had never had acute rheumatism until the present illness and she was admitted in the course of a characteristic attack of rheumatic fever, which, however, subsided soon after admission and since Oct. 23rd there has been no pain in the joints. A sister died from chorea at the age of 14 years. The pulse at first was very rapid, numbering 120 per minute, but was regular in force and rhythm, and now it varies between 90 and 95. The apex beat is situated in the sixth interspace four inches to the left of the middle line. There were loud V.S. and V.D. murmurs at the apex. The V.D. murmur is strictly confined to the apex region. The second pulmonic sound is markedly accentuated. In the aortic area there is great muffling of the cardiac sounds and the V.S. murmur is practically inaudible. Since the subsidence of the rheumatism there has been no urgent cardiac symptom. It is worthy of note that on Oct. 14th, 1899, it was observed that a short A.S. murmur preceded the apex systolic murmur.

CASE 5.—The patient, a girl, aged 11 years, was readmitted on Oct. 16th, 1899, suffering from a second attack of chorea, having been dismissed, after recovery from her first attack, on July 28th, 1899. Her pulse numbers 80 per minute and is small, irregular, and easily compressible. During her first residence the heart was normal, but now there is a soft systolic murmur to be heard at the apex. There is no other sign of cardiac involvement.

CASE 6.—A female child, aged nine years, was admitted on Oct. 18th, 1899, suffering from shortness of breath and general weakness of about a month's duration. She also suffered from slight pains in the joints. Her pulse is small and easily compressed. At first it varied between 90 and 100, now it ranges between 70 and 80. A very pronounced V.S. murmur is audible over the apex beat, with a suggestion of an A.S. element. There is great accentuation of the second sound both at the apex and the base.

CASE 7.—The patient, a man, aged 30 years, was admitted on Oct. 24th, 1899, suffering from mitral regurgitation with well-marked hypertrophy and dilatation of the left ventricle. He was also the subject of well-marked paresis affecting the whole right side and of distinct motor aphasia of an exceedingly pure and uncomplicated kind. No sensory aphasia could be made out. The paralytic phenomena had developed suddenly while he was out walking on Oct. 20th. Before this date he had always considered himself to be in very good health. No history of rheumatic fever could be obtained, though he admitted that he suffered occasionally from rheumatic pains. There is nothing in the history to indicate the duration of the cardiac lesion. The apex beat is situated in the fifth intercostal space four and a half inches to the left of the middle line. On placing the hand over the apex beat a slight diastolic thrill can occasionally be felt, and on auscultation a loud systolic murmur is heard, well conducted into the axilla.

CASE 8.—The patient, a married woman, aged 53 years, was admitted on Oct. 28th, 1899, suffering from cardiac dilatation, with a soft, whiffing, systolic murmur at the apex. The symptoms were of one month's duration on admission, and consisted of pain in the præcordium, palpitation, orthopnœa, and œdema of the lower limbs. No rheumatic history of any kind could be obtained. The temperature is normal, the face is livid, and the capillaries of the cheeks are injected. The pulse is exceedingly irregular both in force and in rhythm and numbers 110. The apex beat is situated in the fifth interspace, four inches to the left of the middle line, and over it a soft V.S. murmur is heard. Comparative dulness is made out at the right base behind, where also numerous fine moist râles are heard.

CASE 9.—An unmarried woman, aged 21 years, was admitted on Oct. 27th, 1899, suffering from mitral regurgitation with considerable dilatation of the left ventricle. The symptoms were of two years' duration and consisted mainly of cough, shortness of breath, palpitation, and occasional hoarseness. This is the fourth illness characterised by similar symptoms since October, 1898. She has suffered from scarlet fever and measles in childhood. She never had rheumatic fever, but

[1] As the symbols, first of all suggested by Sir William T. Gairdner, K.C.B., in 1861, made use of in this lecture to indicate the different forms of cardiac murmurs may not be familiar to many not trained in the Glasgow or Edinburgh Schools it may be serviceable to indicate their signification in a footnote: A.S. = Auriculo-systolic; often denominated "presystolic." V.S. = Ventricular-systolic; often called simply "systolic." V.D. = Ventricular-diastolic; often called simply "diastolic."

she has frequently had severe growing pains. The mitral physiognomy is well marked and there is great œdema of the lower limbs. The pulse, numbering about 80, is very irregular in force and in rhythm. The apex beat is situated in the fifth interspace four and a quarter inches to the left of the middle line. A loud V.S. murmur is heard at the apex and a distinct systolic thrill can be felt.

CASE 10.—A girl, aged 12 years, was admitted for the second time on Nov. 7th, 1899. Her first admission was on August 2nd, 1899, and she was dismissed somewhat improved on Oct. 24th. Her first admission was on account of well-marked symptoms of mitral stenosis of about two years' duration in all. Six months before her admission she had frequent attacks of hæmoptysis. The apex beat was situated in the fifth interspace two and three-quarter inches to the left of the middle line. A distinct presystolic thrill could be felt and a loud A.S. murmur, strictly limited to the region of the apex beat, was present. Her present admission is on account of the sudden occurrence of well-marked paralysis of the left side of the face and body. No history of rheumatic fever or of chorea could be obtained. The pulse at present averages about 90 in the minute and is regular in force and rhythm.

All the cases thus briefly summarised have been already brought under your notice in detail in the course of our daily ward visits, when the clinical histories and the physical signs have been minutely investigated and demonstrated. My object at present is to indicate to you in general terms the clinical phenomena of mitral disease which this group of 10 fairly characteristic cases serves to illustrate. In doing this I shall not follow any systematic plan, but shall take up a few of the chief points which are suggested by the clinical summaries which I have just submitted for your consideration.

THE MURMURS OF MITRAL DISEASE.

In all of these 10 cases, with perhaps one exception (Case 8), there is, I believe, definite structural deformity of the mitral curtains and therefore they are of value as enabling us to formulate some idea of the kind of murmurs which may be associated with actual lesion of the mitral valve. The murmur present in eight out of the 10 cases is an apex systolic (V.S.) murmur conveyed towards the axilla. Now it is to be remembered that this murmur need not indicate structural disease of the mitral curtains at all. This murmur may be present in cases where the curtains of the mitral valve are structurally intact. All that it necessarily indicates is that the curtains are not preventing the regurgitation of blood from the left ventricle into the left auricle and this may take place without structural change of the curtains themselves. There is only one murmur which invariably and unmistakeably indicates actual structural change in the mitral curtains and that is the presystolic (A.S.) murmur heard at the apex and limited to this region. As Balfour remarks in his classical lectures, "there is a murmur so invariably associated with disease of the mitral valve that, when once heard, it may be accepted as a positive proof of a permanent deformity of that valve, and that even although the murmur itself may cease to be heard, as not infrequently happens." In two of the above cases only (Case 6 and Case 10) is this positive auscultatory sign of disease of the mitral curtains present. It is a direct murmur and indicates stenosis of the mitral valve, causing obstruction to the passage of blood from the left auricle to the ventricle. Sometimes, however, another murmur is found which may also be regarded as affording fairly positive evidence of actual disease of the mitral curtains, and that is a murmur occupying the long pause, diastolic (V.D.) in rhythm and limited to the apex region in the third left intercostal space. Sometimes the murmur is definitely diastolic in character; sometimes it is heard as an indefinite blow in the long silence. Such diastolic murmurs may probably be regarded as modified or prolonged A.S. murmurs, produced by essentially the same mechanism, and therefore what I have just said of them does not invalidate my previous statement as to the positive signification of the latter murmurs. Both murmurs are direct murmurs. Mitral diastolic murmurs were heard in Case 2 and in Case 4, and in both they were associated with an apex systolic murmur. As regards four only of the ten cases, then, can it be said that we have positive auscultatory evidence of actual lesion of the mitral curtains. As regards the remaining six, however, in which we have only to deal with an apex systolic murmur, there are, I think, five in which we are pretty certain to have structural disease of the mitral curtains, the probable exception being Case 8. As I have said, an apex systolic murmur indicates merely regurgitation from the left ventricle into the auricle, and as this was the only murmur present in these five cases it is clear that structural change in the mitral curtains cannot be inferred from its presence above. This is precisely the point which I desire to press home upon you. Where, in a case of mitral regurgitation, you have on auscultation merely a V.S. murmur at the apex you are dependent upon other phenomena to enable you to arrive at a diagnosis of pathological alteration of the mitral cusps. Chief among these aids to diagnostic precision are a history of acute rheumatism or chorea and the occurrence of embolism. We find this additional evidence in the five cases which were characterised by the presence of an apex systolic murmur alone. In Cases 1 and 2 very clear rheumatic history could be made out, and in Case 9 there was a clear account of severe growing pains and of scarlet fever, the latter being capable occasionally of giving rise to endocarditis. In Case 5 there occurred two attacks of chorea, after the second of which the heart became involved; and in Case 7 we had to deal with a very definite embolic hemiplegia. These are the circumstances, then, which lead me to say that in these five cases characterised only by a V.S. murmur we have to deal with something more than a mere regurgitation. In Case 10 we have the interesting combination of the positive auscultatory sign and the corroborating embolic phenomenon existing together. In only one case (Case 8) of the series the apex murmur does not indicate actual structural change of the valvular curtains, but merely regurgitation through the orifice. In this case I think it is pretty clear that the cause of the incompetence is primarily myocardial and not valvular. There is no evidence of endocarditis and the age of the patient is that at which myocardial degeneration is common. The regurgitation is due to dilatation of the left ventricle and consequent insufficiency of the curtains, hence the apex systolic murmur. The causes and varieties of the murmurs of mitral disease are thus well illustrated by the present series of cases.

THE AGE AT WHICH MITRAL DISEASE OCCURS.

The group of cases also gives us some information on this point. The youngest patient is nine years of age and the oldest is 53 years of age. Seven of these are under the age of 30 years. The lesson taught is that structural lesions of the mitral curtains are more likely to originate in childhood and youth than after the middle period of life, and that mitral incompetence due to myocardial degeneration—e.g., Case 8—is essentially an affection of advancing years. It is well to bear this distinction in mind, as it has an important bearing upon the management and treatment of mitral disease. Acute rheumatism with its resulting endocarditis is perhaps the most common cause of disease of the cardiac valvular curtains. Acute rheumatism is essentially a disease of childhood and early manhood. It is also to be remembered that a certain proportion of cases of mitral stenosis in women are perhaps congenital in origin. Hence arises the preponderance of mitral disease due to structural changes in the valvular curtains in the earlier periods of life. While it is probably true that in the later decades of life mitral disease is more frequently primarily associated with organic affections of the myocardium than of the valvular curtains, it must also be remembered that in a certain proportion of cases the mitral regurgitation may be due to atheromatous changes in the curtains themselves.

THE PHYSIOGNOMY OF MITRAL DISEASE.

This is usually characteristic and is very well illustrated in some of the cases at present in the wards. Thus it is well demonstrated in Case 2, Case 4, Case 6, Case 8, and Case 9. In these cases the lips and cheeks are well coloured; the red colour of these features, however, is scarcely that of health, having a more or less livid hue, which is apt to become more pronounced on coughing or on exertion. The face also is sometimes rather puffy-looking and there is in the expression a suggestion of impaired breathing power. The physiognomy of mitral disease is thus generally in striking contrast with the marked pallor which so often prevails in cases of aortic regurgitation.

ASSOCIATION WITH ACUTE RHEUMATISM.

In six out of the ten cases summarised for the purposes of this lecture there is a definite and unmistakeable association with acute rheumatism—a proportion of 60 per cent. This

association, however, may not always be in evidence before the onset of symptoms indicative of the presence of mitral disease. In Case 4 well-marked mitral obstruction and regurgitation was known to be present at least a year before the patient suffered from her first attack of acute articular rheumatism. She had, however, between the ages of five and six years suffered from chorea, and no doubt this is to be regarded as a manifestation of the rheumatic diathesis. It is noteworthy, however, that she had never suffered from acute articular rheumatism till her second admission to the ward on Oct. 14th, 1899, when she was 12 years of age. This is a feature of the rheumatic manifestations of childhood to which Dr. Cheadle first directed attention and which I have had frequent opportunities of demonstrating to my students in these wards. In the remaining four cases of the 10 there is only one in which acute articular rheumatism can be quite excluded—Case 8. In the other three cases two own to having suffered from "growing pains," or "rheumatics," so that it may be fairly concluded that acute rheumatism is the exciting cause of lesions of the mitral valve in from 60 to 70 per cent. of the cases.

THE PULSE OF MITRAL DISEASE.

The characteristic pulse of mitral disease is well illustrated in only two of the 10 cases. In these cases there is the well-marked irregularity in force and rhythm which is so typical. It is worthy of note also that this extreme irregularity of the pulse is often obtained comparatively early in cases of rheumatic mitral disease before any very marked symptoms of failing compensation have set in. Increased frequency of the pulse is a very common condition in mitral disease, and in five of the cases (Cases 3, 4, 6, 8, and 10) pulse-rates varying between 90 and 120 were recorded. This increased frequency of the heart's action in mitral disease is often very obstinate, and a reduction of the pulse-rate to the normal is not uncommonly one of the first indications of improvement under treatment.

THE SECONDARY RESULTS OF MITRAL DISEASE.

Secondary results are various and only those illustrated in the present series of cases need be referred to in closing this clinical lecture. Failing compensation, with its accompanying passive congestion of the lungs, liver, and kidneys and œdema of the lower limbs, is, perhaps, most to be dreaded. Fortunately, in only two of the cases—Case 3 and Case 8—is this exceedingly grave condition well marked. In all the other cases the compensation is fairly well maintained and the great aim of treatment must be to maintain it. Embolism is a frequent result of structural disease of the cardiac valves and, as in two of the cases—Case 7 and Case 10—this complication is most formidable when it occurs in one of the cerebral arteries. The last complication to which I will refer, that of hæmoptysis, is illustrated in only one of the cases—Case 10. Hæmoptysis is an exceedingly frequent occurrence in well-marked cases of mitral stenosis and it may occur repeatedly. I have frequently thought that it is not altogether to be regarded as a bad symptom, the frequently repeated attacks so often witnessed without serious results following being, perhaps, nature's method of relieving the greatly congested lungs.

Into a discussion of the great and vital question of the prognosis of mitral disease I do not intend to enter. The formulating of precise statements, if that is really ever possible, with regard to the future progress of cases of mitral disease demands an experience much greater than I yet possess. The principles of treatment have been explained in the course of our ward visits. My object in the present lecture has been to direct your attention to some of the more practical points connected with the physical signs and symptoms of mitral disease, in so far as these are illustrated by the cases at present under review.

MÜLLER'S ORPHAN HOUSES, BRISTOL.—The sixty-second annual report of this institution, which has just been issued, shows that 171 orphan children were admitted during 1900, and that 1435 remained in the homes at the end of the year. The average expense of each orphan per annum was £16 8*s.* 5*d.* The financial statement was satisfactory and showed that from the foundation of the homes £1,066,943 had been received without anyone having been personally applied to for anything. Up to now only children bereaved of both parents have been eligible for admission, but it has been decided that children who have only lost one parent may be admitted in future.

THE COMPARATIVE VIRULENCE OF THE TUBERCLE BACILLUS FROM HUMAN AND BOVINE SOURCES.[1]

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THE relation existing between the various types of the tubercle bacillus found in man and in the lower animals has been the subject of much discussion for several years past, and studies of the morphology, biology, and virulence have been undertaken with the object of determining whether or not constant differences could be detected in the organism from these two sources sufficient to justify their classification as distinct species. From a purely practical standpoint the question is narrowed to a study of the bacillus as found in man and in cattle, and in the determination of the relation they bear to each other. The importance of this study is immense, not only to the physician anxious mainly for the protection of his patients, and to the general public who look to the medical profession for guidance in such matters, but perhaps even more so to those who are concerned in the framing of laws and direction of public measures looking to the suppression of tuberculosis in man and animals. Efforts in this direction often meet with strong opposition and extreme statements are made on very scanty evidence, which render the task of the hygienist much more difficult and may result in the failure of his purpose. The lack of positive and authoritative knowledge in regard to this matter has in recent years led to the adoption of retrograde measures in several places. The problem is one that can be entirely cleared up only by a long series of observations and carefully conducted experiments, which are tedious and exacting and require a considerable lapse of time before results can be had. The correct interpretation of these results is in many cases not an easy matter.

The identity of the tubercle bacillus as found in the mammalia went unquestioned for many years, and laws for the prevention of the transmission of the bacillus of cattle to man have been based mainly on this belief. In America Dr. Theobald Smith was the first to take up the systematic study of the bacilli isolated from various of the lower animals and man, and to call attention to certain fairly constant differences observed in the organisms from the two sources which he considers sufficient to justify classifying them as distinct varieties or races, though his experiments "show unmistakably the close relationship existing among the various cultures studied."[2] Dr. R. R. Dinwiddie,[3] pathologist and bacteriologist of the Arkansas Agricultural Experiment Station (U.S.A.), has carried out extensive experiments, in which he has compared the virulence of the human and bovine tubercle bacillus, and also human tuberculous sputum, with bovine material, for a number of the domestic animals, his results showing a greater power for both the bovine bacillus and material than for the human.

The vast practical importance of the matter, no less than its great scientific interest, was early realised by Dr. Leonard Pearson, State Veterinarian of Pennsylvania, and under his direction we have devoted much of our attention at the laboratory of the State Live Stock Sanitary Board for more than two years past to the study of the tubercle bacillus obtained from various cases of tuberculosis in man and in cattle. In the carrying out of this work I have had throughout the efficient assistance of Dr. S. H. Gilliland, on whom a large share of the labour has fallen, and to whom is due much of the credit in its successful issue. To him and to the several physicians who have interested themselves in obtaining material for us I beg to express my obligation. During a considerable portion of the time that Part (1) of the experiment was in progress Dr. W. G. Shaw was in charge of the animals and did much of the work, while the bovine

[1] A paper read before the British Congress on Tuberculosis, Section III., Pathology, including Bacteriology, on Thursday, July 25th, 1901.

[2] Transactions of the Association of American Physicians, 1896.

[3] Arkansas Agricultural Experiment Station, Bulletin No. 57, June, 1899.

material for the inoculations was obtained and prepared by Dr. J. J. Repp; both of these workers were at the time connected with the laboratory.

Our experimental work has been divided into two parts: (1) isolation and study of pure cultures from various sources in man and cattle; and (2) testing the pathogenic power of tuberculous material of human and bovine origin.

Under the first division 13 cultures, seven of human and six of bovine origin, are included in this report. Of these, two human and two bovine have been compared under conditions as nearly identical throughout as it was possible to obtain them. Culture H (bovine) and culture K (human) were isolated within a few days of each other, while L (bovine) and M (human) were made on the same day. The first sub-cultures of both pairs were made on the same day and all transfers since have been made simultaneously. The comparative pathogenicity of these cultures is shown in Table I. and Table II. Cultures H and K were tested also for puppies and pigs by feeding, as described below. Culture H was recovered from a horse, a goat, two puppies, two hogs, and a man; while Culture K was recovered only from two puppies and two hogs, the absence of lesions in other animals inoculated making it impossible to obtain a series comparable to Culture H. The virulence of these recovered cultures, with the exception of that from the horse, was tested for guinea-pigs and rabbits, the results being given in Table III. Human cultures I, J, U, and W, and bovine cultures F, Q, QQ, and T, were isolated as occasion arose, and their virulence tested only for guinea-pigs and rabbits. The dose and mode of inoculation were uniform in all cases and the animals were kept under the same conditions, but beyond this the tests are not entirely parallel. The results are given in Table IV. In addition to the cultures here mentioned we have isolated and examined nine others both morphologically and culturally. These have been taken into account in forming our conclusions, as well as the very careful descriptions given by Dr. Theobald Smith of the cultures studied by him. The terms "human" and "bovine" have been applied to cultures to denote their origin from man or from cattle. Each culture is designated by a letter of the alphabet, and the generation indicated by a small figure at the lower right corner. Cultures which have been inoculated and recovered retain their original letter, a second letter inclosed in brackets being added to mark the recovered culture.

The second part of the work has been the inoculation of animals with tuberculous material from man and cattle. The plan and methods are described in another section, while the results are given in Tables V. and VI. As a part of this experiment human tuberculous sputum has been fed to two calves and four have been inoculated with the same material. These have been included in Table V. and are described further on.

PART I.—ISOLATION AND STUDY OF PURE CULTURES FROM VARIOUS SOURCES IN MAN AND CATTLE.

Method of isolating pure cultures.—The isolation of cultures has been obtained by the method devised by Dr. Theobald Smith,[4] the principal features of which are as follows:—1. Test-tubes are fitted with a ground on cap like that of the well-known Miquel flask. The small tubulation in the cap is plugged with glass wool. 2. The medium is dog's serum. The animal is bled with the strictest aseptic precautions and the blood conducted to sterile jars through sterile rubber tubes. The serum is drawn off with pipettes and distributed at once into the test-tubes, put in the hardening oven, and coagulated at a low temperature (76° C.). Prepared in this way the serum needs no sterilisation and is much softer than when a higher temperature is employed. 3. The tubes are kept always inclined. 4. The tuberculous tissue selected for planting in our culture tubes is not crushed or rubbed over the surface, as advised in other methods. Young nodules from the omentum, spleen, liver, or a lymphatic gland are cut out and a block of considerable size is placed on the surface of the serum. After remaining from two to three weeks in the incubator at from 37·5° to 39° C. the tissue is pressed against the sides of the tubes with a stout platinum wire and rubbed over the surface of the medium. Examination of the fluid squeezed out of the tissue at this time will generally indicate the final result. The tubes are replaced in the incubator and within a week or 10 days colonies of the tubercle bacillus usually appear. The nodules for inoculation of the tubes are best obtained from guinea-pigs which are to be inoculated with the original matter from which we wish to obtain cultures. As soon as these show marked illness they are chloroformed and the cultures made. In general terms, the more recent the lesions the greater the chances of successful culture. As a rule, guinea-pigs can be killed in from three to four weeks after inoculation. If our material is of human origin the inoculation should be intra-peritoneal; if bovine, subcutaneous inoculation will generally cause a sufficiently rapid involvement of the organs. 5. The incubator should contain a dish of water to insure an abundance of moisture in the atmosphere. With the same object in view it should be opened as seldom as possible. The only modification of the above method in our work has been the addition of a 50 per cent. solution of glycerine in water to the serum in such proportion that the resulting mixture contains 5 per cent. of glycerine. This seems to make coagulation slightly more tardy, but the serum does not dry as quickly, and the growth of the tubercle bacillus is facilitated. Serum prepared in this manner has been employed throughout for the cultures used in our inoculations.

Preparation of cultures for inoculation and dosage.—The course of an experimental tuberculosis depends so largely on the number of bacilli introduced that exact dosage is an important factor in comparative work. Weighing naturally suggested itself, but a trial soon convinced us of its impracticability. The growth of human cultures is usually so abundant by the second generation that it is easy to obtain fairly dry masses which can be weighed quite accurately, but bovine cultures often grow very scantily for many generations as a thin film resembling ground glass. We have adopted as a uniform practice the method of Dr. Theobald Smith—the use of a suspension of a given opacity. A portion of the growth is removed to the wall of a dry and sterile test tube and rubbed round and round with a glass rod until no lumps can be seen. Bouillon is then added and after stirring thoroughly the mixture is allowed to stand quiet for two or three hours so that the clumps may settle. The upper portion is poured off and bouillon added until the suspension equals in turbidity a 24-hour old culture of the typhoid bacillus. The test culture is killed with formalin vapour and sealed so that it can be used as a standard for a considerable time. Cover-glass preparations were made always as controls. In the accompanying tables the generation of the cultures is indicated by the exponent and the age of each culture is given in days in a separate column. For guinea-pigs and rabbits the dose has, throughout, been one cubic centimetre of the suspension introduced under the skin of the abdomen. For the other animals the dose and mode of inoculation are given in the tables.

Morphology and cultural characteristics of bacilli examined.—The morphology of the bacilli in cultures of bovine origin is more uniform and constant than in cultures from man. The bovine bacilli are short, seldom more than two microns in length and averaging less. In early generations many are seen which are oval, their length not more than double their breadth. They are thick and straight. They stain with carbol-fuchsin evenly and deeply and beading is markedly absent, even in old cultures. The human bacilli are, as a rule, much longer from the start and tend to increase rapidly in length in sub-cultures. They are generally more or less curved and some cultures contain many S-shaped forms, as culture M noted below. They stain with carbol-fuschin less deeply and beading is a marked characteristic, often seen in the earliest growth. These characteristics are most persistent in cultures on blood serum. On glycerine agar, glycerine bouillon, and potato with glycerine the bacilli from the two sources approach each other in appearance and morphology much more closely.

The human cultures isolated have without exception grown more luxuriantly than the bovine cultures, though in at least two instances (Culture U and Culture BB) the first growth was very long in appearing. This was due no doubt to their feeble virulence and consequent slow production of lesions in the tissues of guinea-pigs. A saprophytic life once established they grew vigorously. The bovine cultures are apt to grow as discrete colonies in the first culture and for several generations are likely to grow as an exceedingly thin layer over a part of the medium, resembling closely ground glass. The human bacillus can usually be induced to grow on glycerine agar in sub-cultures made from the original growth on blood serum. All attempts to obtain a like result with

[4] Journal of Experimental Medicine, vol. iii., No. 4 and No. 5, 1898.

TABLE I.—SHOWING THE VIRULENCE OF BOVINE AND HUMAN CULTURES.

Culture.	Age in days.	Animals.	Date of inoculation.	Method of inoculation.	Dose in cubic centimetres.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life.	Average.
						Bovine Culture H.						
H_2	15	Guinea-pig.	Sept. 2nd.	Sub-cutaneous.	1	290 grammes.	174 grammes.	116 grammes loss.	Sept. 25th.	—	23 days.	
,,	15	,,	,, 2nd.	,,	1	310 ,,	224 ,,	86 grammes loss.	Oct. 9th.	—	37 ,,	28½ days.
,,	15	,,	,, 2nd.	,,	1	300 ,,	200 ,,	100 grammes loss.	Sept. 27th.	—	25 ,,	
,,	15	Rabbit.	,, 2nd.	,,	1	1730 ,,	—	—	Nov. 7th.	—	66 ,,	
,,	15	,,	,, 2nd.	,,	1	1580 ,,	—	—	Oct. 19th.	—	47 ,,	56½ ,,
,,	29	Dog.	,, 16th.	Intra-pulmonary.	2	20 pounds.	18 pounds.	2 pounds loss.	Nov. 14th.	—	59 ,,	
,,	29	,,	,, 16th.	,,	2	60 ,,	—	—	,, 21st.	—	66 ,,	62½ ,,
H_3	73	Horse.	Dec. 9th.	,,	14	1030 ,,	990 pounds.	40 pounds loss.	—	June 25th.	6 months 16 days.	—
,,	73	Goat.	,, 9th.	,,	4	79 ,,	61 ,,	18 pounds loss.	Dec. 31st.	—	22 days.	
,,	73	,,	,, 9th.	,,	4	29 ,,	20¼ ,,	8¾ pounds loss.	Jan. 4th.	—	26 ,,	24 ,,
						Human Culture K.						
K_2	15	Guinea-pig.	Sept. 2nd.	Sub-cutaneous.	1	380 grammes.	270 grammes.	110 grammes loss.	Oct. 14th.	—	42 days.	
,,	15	,,	,, 2nd.	,,	1	320 ,,	175 ,,	145 grammes loss.	Sept. 30th.	—	28 ,,	38 days.
,,	15	,,	,, 2nd.	,,	1	310 ,,	215 ,,	95 grammes loss.	Oct. 16th.	—	44 ,,	
,,	15	Rabbit.	,, 2nd.	,,	1	1375 ,,	1970 ,,	595 grammes gain.	—	May 25th.	8 months 23 days.	8 months 23 days.
,,	15	,,	,, 2nd.	,,	1	1500 ,,	1820 ,,	320 grammes gain.	—	,, 25th.	8 months 23 days.	
,,	29	Dog.	,, 16th.	Intra-pulmonary.	2	21 pounds.	20 pounds.	1 pound loss.	—	April 20th.	7 months 4 days.	6 months 19 days.
,,	29	,,	,, 16th.	,,	2	57 ,,	54 ,,	3 pounds loss.	—	March 19th.	6 months 3 days.	
K_3	79	Horse.	Dec. 9th.	,,	14	1275 ,,	1370 ,,	95 pounds gain.	—	June 25th.	6 months 17 days.	—
,,	79	Goat.	,, 9th.	,,	4	73 ,,	75 ,,	2 pounds gain.	—	,, 29th.	6 months 21 days.	6 months 21 days.
,,	79	,,	,, 9th.	,,	4	28 ,,	37 ,,	9 pounds gain.	—	,, 29th.	6 months 21 days.	

TABLE II.—SHOWING THE VIRULENCE OF BOVINE AND HUMAN CULTURES.

						Bovine Culture L.						
L_2	35	Guinea-pig.	Dec. 22nd.	Sub-cutaneous.	1	330 grammes.	210 grammes.	120 grammes loss.	Jan. 13th.	—	22 days.	
,,	35	,,	,, 22nd.	,,	1	424 ,,	240 ,,	184 grammes loss.	,, 13th.	—	22 ,,	26¾ days.
,,	35	,,	,, 22nd.	,,	1	286 ,,	246 ,,	40 grammes loss.	,, 27th.	—	36 ,,	
,,	35	Rabbit.	,, 22nd.	,,	1	1720 ,,	1216 ,,	504 grammes loss.	March 27th.	—	95 ,,	
,,	35	,,	,, 22nd.	,,	1	2100 ,,	1450 ,,	650 grammes loss.	,, 30th.	—	98 ,,	96½ ,,
,,	35	Dog.	,, 22nd.	Intra-pulmonary.	3	31 pounds.	30½ pounds.	1½ pounds loss.	—	April 30th.	129 ,,	
,,	35	,,	,, 22nd.	,,	3	25½ ,,	27 ,,	1½ pounds gain.	—	May 2nd.	131 ,,	130 ,,
,,	36	Goat.	,, 23rd.	,,	4½	83 ,,	73 ,,	10 pounds loss.	Jan. 8th.	—	16 ,,	—
						Human Culture M.						
M_2	35	Guinea-pig.	Dec. 22nd.	Sub-cutaneous.	1	350 grammes.	260 grammes.	90 grammes loss.	Feb. 14th	—	54 days.	
,,	35	,,	,, 22nd.	,,	1	410 ,,	300 ,,	110 grammes loss.	Jan. 13th.	—	22 ,,	34 days.
,,	35	,,	,, 22nd.	,,	1	300 ,,	216 ,,	84 grammes loss.	,, 17th.	—	26 ,,	
,,	35	Rabbit.	,, 22nd.	,,	1	1620 ,,	1740 ,,	120 grammes gain.	—	May 25th.	154 ,,	
,,	35	,,	,, 22nd.	,,	1	1730 ,,	1930 ,,	200 grammes gain.	—	,, 25th.	154 ,,	154 ,,
,,	35	Dog.	,, 22nd.	Intra-pulmonary.	3	29¼ pounds.	22 pounds.	7¼ pounds loss.	—	April 27th.	126 ,,	
,,	35	,,	,, 22nd.	,,	3	21 ,,	18½ ,,	2½ pounds loss.	Feb. 19th.	—	59 ,,	92½ ,,
,,	36	Goat.	,, 23rd.	,,	4½	52 ,,	48 ,,	4 pounds loss.	—	June 29th.	6 months 6 days.	—

the bovine organism have failed. Three of the bovine cultures examined have been isolated from milk. Two of them, Culture L and Culture Q, have shown throughout the characters of the type described as "bovine," while T approaches the human bacillus in morphology, being long and slender. It is, however, more virulent than any human culture tested.

Hand to be "more clearly than any other he had ever seen of intestinal origin," and was therefore studied with peculiar interest. Its pathogenicity has not yet been determined, but the course of the disease in the guinea-pigs inoculated to obtain the culture indicated a very feeble virulence, one living 66 and another 96 days. The bacilli, even in the first generation, are unusually long and thick. They stain deeply

TABLE III.—SHOWING THE VIRULENCE OF CULTURE H (BOVINE) AND CULTURE K (HUMAN) FOR RABBITS AND GUINEA-PIGS AFTER RECOVERY FROM ORIGINAL ANIMAL.

Culture.	Recovered from.	Age in days.	Animals.	Date of inoculation.	Initial weight. Grammes.	Weight at death. Grammes.	Loss or gain in weight. Grammes.	Died.	Length of life. Days.	Average. Days.
H (A)$_2$	Goat.	22	Guinea-pig.	June 19th.	360	225	135 loss.	July 26th.	37	27½
,,		22	,,	,, 19th.	430	—	—	,, 13th.	24	
,,		22	,,	,, 19th.	410	—	—	,, 10th.	21	
H (B)$_2$	Puppy.	42	,,	May 28th.	280	220	60 loss.	,, 2nd.	35	28½
,,		42	,,	,, 28th.	360	210	150 ,,	June 23rd.	26	
,,		42	,,	,, 28th.	260	184	76 ,,	,, 21st.	24	
H (C)$_2$	Puppy.	41	,,	,, 28th.	310	210	100 ,,	July 2nd.	35	40
,,		41	,,	,, 28th.	295	210	85 ,,	June 29th.	32	
,,		41	,,	,, 28th.	308	230	78 ,,	July 20th.	53	
H (D)$_2$	Hog.	36	,,	August 4th.	562	380	182 ,,	Sept. 8th.	35	33
,,		36	,,	,, 4th.	550	280	270 ,,	,, 7th.	34	
,,		36	,,	,, 4th.	470	270	200 ,,	,, 3rd.	30	
H (E)$_2$	Man (S. H. G.)	27	,,	,, 2nd.	460	260	200 ,,	August 29th.	27	28½
,,		27	,,	,, 2nd.	640	400	240 ,,	Sept. 3rd.	32	
,,		27	,,	,, 2nd.	536	370	166 ,,	August 22nd.	20	
H (F)$_2$	Hog.	38	,,	Sept. 13th.	1610	370	240 ,,	Oct. 29th.	46	40
,,		38	,,	,, 13th.	330	240	90 ,,	,, 22nd.	39	
,,		38	,,	,, 13th.	250	200	50 ,,	,, 18th.	35	
H (A)$_3$	Goat.	22	Rabbit.	June 19th.	2030	1680	350 ,,	July 18th.	29	53
,,		22	,,	,, 19th.	1800	1380	420 ,,	Sept. 4th.	77	
H (B)$_2$	Puppy.	42	,,	May 28th.	1456	1300	65 ,,	August 28th.	92	84½
,,		42	,,	,, 28th.	1975	1180	795 ,,	,, 13th.	77	
H (C)$_2$	Puppy.	41	,,	,, 28th.	1770	1050	720 ,,	,, 11th.	75	78½
,,		41	,,	,, 28th.	1818	1270	548 ,,	,, 18th.	82	
H (D)$_2$	Hog.	36	,,	August 4th.	—	910	—	Sept. 12th.	39	65
,,		36	,,	,, 4th.	—	805	—	Nov. 3rd.	91	
H (E)$_2$	Man (S. H. G.)	27	,,	,, 2nd.	2510	1626	884 loss.	Oct. 29th.	87	61½
,,		27	,,	,, 2nd.	1870	1620	250 ,,	Sept. 7th.	36	
H (F)$_2$	Hog.	38	,,	Sept. 13th.	1530	1190	340 ,,	Nov. 12th.	60	63
,,		38	,,	,, 13th.	840	940	100 gain.	,, 18th.	66	
K (B)$_2$	Puppy.	39	Guinea-pig.	May 28th.	315	280	35 loss.	August 16th.	80	63
,,		39	,,	,, 28th.	310	270	40 ,,	July 26th.	59	
,,		39	,,	,, 28th.	330	240	90 ,,	,, 17th.	50	
K (C)$_2$	Puppy.	42	,,	,, 28th.	380	220	160 ,,	,, 27th.	59	48
,,		42	,,	,, 28th.	440	280	160 ,,	,, 18th.	50	
,,		42	,,	,, 28th.	390	220	170 ,,	,, 3rd.	35	
K (D)$_2$	Hog.	29	,,	August 7th.	530	—	—	Sept. 8th.	32	29½
,,		29	,,	,, 7th.	390	330	60 loss.	,, 3rd.	27	
K (E)$_2$	Hog.	38	,,	Sept. 13th.	350	220	130 ,,	Oct. 16th.	33	32½
,,		38	,,	,, 13th.	320	260	60 ,,	,, 9th.	26	
,,		38	,,	,, 13th.	310	220	90 ,,	,, 21st.	38	
K (B)$_2$	Puppy.	39	Rabbit.	May 28th.	1445	1360	85 ,,	August 28th.	92	104
,,		39	,,	,, 28th.	1685	1610	75 ,,	Sept. 21st.	116	
K (C)$_2$	Puppy.	42	,,	,, 28th.	1560	2010	450 gain.	*	128	128
,,		42	,,	,, 28th.	1560	2610	1050 ,,	*	128	
K (D)$_2$	Hog.	21	,,	August 7th.	—	—	—	Oct. 1st.	56	71½
,,		21	,,	,, 7th.	—	—	—	Nov. 3rd.	88	
K (E)$_2$	Hog.	38	,,	Sept. 13th.	1260	1290	30 gain.	,, 3rd.	51	62½
,,		38	,,	,, 13th.	1050	855	195 loss.	,, 28th.	74	

* Killed Oct. 4th.

Among the human cultures only one (M) has been isolated from sputum. Through the kindness of Dr. Alfred Hand, pathologist of the Children's Hospital, to whom I beg to make grateful acknowledgments, I have been able to obtain cultures from three cases of tuberculosis in young children in which the intestine was involved. One of these, from which Culture BB was isolated, was considered by Dr. Hand to be "more clearly than any other he had ever seen of intestinal origin," and was therefore studied with peculiar interest. Its pathogenicity has not yet been determined, but the course of the disease in the guinea-pigs inoculated to obtain the culture indicated a very feeble virulence, one living 66 and another 96 days. The bacilli, even in the first generation, are unusually long and thick. They stain deeply with carbol-fuchsin, but are beaded in a striking manner, the brightly stained portions being quite regularly disposed along the rod. They are, in every way, most unlike what I have described as the bovine type. Cultures U and W, also from children with intestinal lesions, correspond to the human type in every particular, both as regards morphology and virulence.

The following is the comparison and history of Culture H (bovine) and Culture K (human):—

Culture H (bovine) was isolated from the mesenteric gland of a Jersey Grade cow about seven years old which had been slaughtered for beef but being found to be extensively diseased was condemned. The lungs were the seat of an extensive and long-continued tuberculosis. Most of the foci had undergone caseation. The liver was involved also, but to a less extent. The gland from which the culture was obtained had undergone cheesy degeneration. On May 17th, 1899, guinea-pigs were inoculated intra-peritoneally with an emulsion made from the centre of this gland. On July 6th one pig was killed and cultures were made on dog's serum. On July 28th the first growth was observed, and on August 18th sub-cultures were made from the omentum. The growth was fairly abundant. The bacilli were short, thick, straight, and stained evenly and deeply. Culture K (human) was isolated from the lung of an adult male negro. The disease was not severe and was confined, almost entirely, to the lungs. Death was due to heart trouble. Guinea-pigs were inoculated intra-peritoneally with an emulsion made from nodules taken from the lungs on June 10th, 1899. On June 28th a pig was killed and cultures were made on dog's serum. Growth was first observed on July 29th, the cultures from the spleen being used for sub-cultures, the first of which was made on August 18th. This culture grew rapidly and abundantly from the beginning. The bacilli were long, slender, and curved. They stained somewhat faintly and showed marked tendency to beading. (See Table I.)

The following is the comparison and history of Culture L (bovine) and Culture M (human):—

Culture L (bovine) was obtained from the milk of a cow with tuberculosis of the udder. On May 22nd, 1899, a guinea-pig was inoculated with 10 cubic centimetres of this milk. It died on July 8th and from it a second guinea-pig was inoculated intra-peritoneally with an emulsion made from the spleen and omentum. On August 25th this pig was killed and two others were inoculated intra-peritoneally with an emulsion from the spleen and omentum. One of these was killed on Sept. 18th and cultures were made on dog's serum. On Oct. 20th growth was first observed. On Nov. 17th sub-cultures were made. The growth for several generations was very scanty. The bacilli were extremely short and many were oval in shape. They took the stain evenly and deeply. Culture M (human) was obtained from the sputum of a young adult female. Throat symptoms were most marked in this case. The disease was rapid and virulent, death occurring in about five weeks after the sample of sputum was obtained. It contained large numbers of tubercle bacilli. On July 12th, 1899, a guinea-pig was inoculated subcutaneously with the sputum. It was killed on August 25th and two pigs were inoculated intra-peritoneally with an emulsion made from the spleen and omentum. On Sept. 18th a pig was killed and cultures were made on dog's serum. Growth was first observed on Oct. 15th and sub-cultures were made on the 17th. Growth was rapid and abundant from the outset and the first transfers made from the original culture to glycerine

TABLE IV.—SHOWING THE VIRULENCE OF THE TUBERCLE BACILLUS FROM VARIOUS SOURCES FOR RABBITS AND GUINEA-PIGS.

Culture.	Age in days.	Animals.	Initial weight. Grammes.	Weight at death. Grammes.	Loss or gain in weight. Grammes.	Date of inoculation.	Died.	Killed.	Length of life. Days.	Average. Days.
J_6 Human.	20	Guinea-pig.	610	370	240 loss.	July 16th.	Sept. 24th.	—	70	79½
,, ,,	20	,,	514	320	194 ,,	,, 16th.	Oct. 1st.	—	77	
,, ,,		,,	434	310	124 ,,	,, 16th.	,, 16th.	—	92	
,, ,,	20	Rabbit.	920	1450	530 gain.	,, 16th.	—	Dec. 19th.	156	156
,, ,,	20	,,	855	1470	615 ,,	,, 16th.	—	,, 19th.	156	
I_6 ,,	32	Guinea-pig.	685	510	185 loss.	,, 16th.	August 4th.	—	19	54½
,, ,,	32	,,	700	420	280 ,,	,, 16th.	Sept. 12th.	—	58	
,, ,,	32	,,	454	360	94 ,,	,, 16th.	Oct. 10th.	—	86	
,, ,,	32	Rabbit.	900	1850	950 gain.	,, 16th.	—	Dec. 19th.	156	—
U_3 ,,	24	Guinea-pig.	390	210	180 loss.	Jan. 14th.	Feb. 20th.	—	37	43
,, ,,	24	,,	360	290	70 ,,	,, 14th.	,, 21st.	—	38	
,, ,,	24	,,	330	265	65 ,,	,, 14th.	March 9th.	—	54	
,, ,,	24	Rabbit.	1710	2040	330 gain.	,, 14th.	—	June 15th.	152	152
,, ,,	24	,,	1480	2130	640 ,,	,, 14th.	—	,, 15th.	152	
W_3 ,,	19	Guinea-pig.	745	—	—	—	—	—		All animals living at the end of 60 days.
,, ,,	19	,,	730	—	—	—	—	—		
,, ,,	19	,,	700	—	—	—	—	—		
,, ,,	19	Rabbit.	1470	—	—	—	—	—		
,, ,,	19	,,	1750	—	—	—	—	—		
F_6 Bovine.	23	Guinea-pig.	404	320	84 loss.	Jan. 19th.	Sept. 7th.	—	50	29½
,, ,,	23	,,	480	320	160 ,,	,, 19th.	August 16th.	—	28	
,, ,,	23	,,	546	340	206 ,,	,, 19th.	,, 28th.	—	40	
,, ,,	23	Rabbit.	2350	1380	970 ,,	,, 19th.	Nov. 23rd.	—	127	126½
,, ,,	23	,,	910	670	240 ,,	,, 19th.	,, 22nd.	—	126	
Q_4 ,,	35	Guinea-pig.	380	270	110 ,,	,, 19th.	August 4th.	—	16	24½
,, ,,	35	,,	510	420	90 ,,	,, 19th.	,, 12th.	—	24	
,, ,,	35	,,	800	560	240 ,,	,, 19th.	,, 22nd.	—	34	
,, ,,	35	Rabbit.	1580	980	600 ,,	,, 19th.	Oct. 13th.	—	86	79½
,, ,,	35	,,	895	875	20 ,,	,, 19th.	Sept. 20th.	—	73	
QQ_2 ,,	25	Guinea-pig.	560	380	180 ,,	August 4th.	August 22nd.	—	18	24
,, ,,	25	,,	510	370	140 ,,	,, 4th.	Sept. 3rd.	—	30	
,, ,,	25	Rabbit.	1930	1500	430 ,,	,, 4th.	Oct. 17th.	—	74	40½
,, ,,	25	,,	1340	1080	260 ,,	,, 4th.	August 11th.	—	7	
T_4 ,,	35	Guinea-pig.	390	290	100 ,,	Sept. 11th.	Oct. 21st.	—	40	36½
,, ,,	35	,,	420	265	155 ,,	,, 11th.	,, 10th.	—	29	
,, ,,	35	,,	455	340	115 ,,	,, 11th.	,, 21st.	—	40	
,, ,,	35	Rabbit.	1210	1090	120 ,,	,, 11th.	,, 18th.	—	37	49½
,, ,,	35	,,	1090	860	230 ,,	,, 11th.	Nov. 12th.	—	62	

agar grew luxuriantly. The bacilli in the original culture were rather short, irregular in shape, many S-shaped, and as a rule stained quite evenly and deeply. In sub-cultures the bacilli soon became much longer, straighter, and showed beading (see Table II.).

It will be seen from Table I. and Table II. that for each culture 10 animals were used. Of the 10 inoculated with Culture H (bovine), nine died, while only one had to be killed, this being the horse; while of those inoculated with Culture K (human) only three died, while seven had to be killed. With each of Culture L (bovine) and Culture M (human) eight animals were inoculated. Of those inoculated with Culture L six died and two were killed, while for Culture M four died and four were killed. Taking the totals of these four cultures, 18 animals were used for the bovine cultures and 18 for the human. Of those inoculated with bovine tubercle bacillus 15 died and three were killed, while of those inoculated with the human cultures seven died and 11 were killed. By making a closer study of the tables further differences in virulence between the bovine and human cultures may be brought out. All the guinea-pigs inoculated with these four cultures died, the extent of the post-mortem lesions being practically identical in all of them. Those inoculated with Culture K (human) lived almost 10 days longer than those inoculated with Culture H (bovine), while those inoculated with Culture M (human) lived seven and a third days longer than those inoculated with Culture L (bovine). All the rabbits inoculated with both of the human cultures had to be killed and showed no post-mortem lesions whatever, while those inoculated with the bovine cultures died with extensive lesions. These lesions varied somewhat in the different animals, necrotic areas at the point of inoculation and complete involvement of the lungs being common to them all. The kidneys were also generally involved. Only one animal had generalised tuberculosis, involving the lungs, liver, kidneys, spleen, and omentum.

Dogs.—The dogs showed a varying degree of susceptibility to all the cultures. Both of those inoculated with Culture H (bovine) died, one in 59 days, the other in 66 days. The smaller of the two had shown signs of illness for some days before death. The point of inoculation was well marked in the lung by a mass of tubercles 2·5 centimetres in diameter. Both lungs were infiltrated throughout with grey nodules from two millimetres to four millimetres in diameter. Both pleural cavities contained a considerable amount of purulent effusion. The right pleura was roughened, without adhesions. The outer surface of the pericardium was thickly sown with minute nodules about two millimetres in diameter, its interior being smooth. The liver was infiltrated throughout and necrotic, giving a nutmeg appearance. The right kidney contained a number of tuberculous nodules; the left was congested but otherwise normal. The spleen had escaped infection. Through an accident no post-mortem examination was obtained on the other dog, but from his symptoms for some days before death it is reasonably certain that the disease was general, affecting particularly, perhaps, the lungs. Both of the dogs inoculated with Culture K (human) had to be killed, the lesions in both being insignificant. In one the only marked change which could be found corresponded to the point of inoculation in the lung, where a small excavation was found almost completely filled in with scar tissue, radiating from the centre in star shape. Scrapings from cut surfaces of this area revealed the presence of tubercle bacilli. All the other organs were entirely normal. In the other dog the point of inoculation was marked by a large nodule in the pleural surface of the lung. The surfaces of both lungs showed a great number of minute nodules. Scrapings from cut surfaces revealed tubercle bacilli in small numbers. On the external surface of the pericardium was a nodule about one inch in diameter, which contained calcareous foci encapsulated in dense fibrous material. The mediastinal glands were enlarged and contained a number of caseous foci. In all other respects the animal seemed normal.

Horses.—A marked difference was noted in the effect of the cultures on the horses. The horse inoculated with bovine Culture H showed no ill-effects from the injection for some months. In the latter part of March, nearly four months after the injection, some emaciation could be noted, and the respiration was quickened, being on an average 22 a minute and somewhat laboured. On April 1st the temperature averaged 102·2° F. The symptoms grew slightly more marked, and on June 25th, six and a half months after inoculation, the animal was killed. It had lost 40 pounds in weight, though its condition was still fair. The costal pleurae were extensively covered with masses of nodules of from two millimetres to 18 millimetres in diameter, averaging nearly 12 millimetres in thickness. These growths were somewhat more extensive on the left side than on the right and tended to be more isolated and somewhat larger in size. The lungs were a greyish pink, the blood-vessels being plainly outlined in a delicate network over the surface. They were covered with nodules, varying from one millimetre up to six millimetres in size and closely packed. Both lungs were hard, dense, and devoid of elasticity, having much the feel of liver. At the point of inoculation on the right lung a small depression was found filled in with a star-shaped cicatrix. This cicatricial tissue was surrounded with a nodule about 2·5 centimetres in diameter, containing cheesy areas and much fibrous tissue. In the posterior part of the left lung a tuberculous abscess about 2·5 centimetres in diameter was found, and in the bottom of the lung several similar in size and character were seen. The bronchial glands were enlarged to twice their normal size but showed no caseation. The surface of the pericardium was studded with minute nodules. The thoracic surface of the diaphragm was covered over a large portion of its surface with nodules of the size of a pea, some of them pedunculated. Among the nodules were many shreds of fibrin, some of them 2·5 centimetres in length. Similar masses were seen also on the costal surface of the lung. The liver, spleen, and kidneys appeared normal. The horse inoculated with culture K (human) showed no clinical evidence of injury. On April 1st its respiration was 12 a minute and its temperature was 100·5° F. It was killed on June 25th, about six and a half months after inoculation. Its condition was good. It had gained 95 pounds in weight. There was considerable fat subcutaneously and about the abdominal organs. All of the abdominal organs were entirely normal with the exception of the liver, on the surface of which many fringes of fibrin were found. In the thoracic cavity both pleurae were smooth and shiny except at the point of inoculation on the right side, where a mass of small nodules with fringes of fibrin were seen. At the point of inoculation in the right lung was a cheesy abscess 4 centimetres in diameter, and incapsulated with dense fibrous tissue, the walls being 6 millimetres thick. Otherwise the lung was entirely normal. In the left lung were three small tuberculous nodules about 12 millimetres in diameter, situated near the surface; these had undergone caseation. The disease was evidently non-progressive and was probably retrogressive.

Goats.—Both the goats inoculated with Culture H (bovine) died, one in 22 days and the other in 26 days, the lesions being much the same in both. There were thickening of the pleura and adhesions at the point of inoculation; otherwise they were normal. The lungs were covered with myriads of minute tubercles about one millimetre in diameter, which gave a gritty feel to them. In the substance of the lung no tubercles could be found. The cut surfaces presented a pneumonic appearance, most marked in the smaller of the two animals. Scrapings from a cut surface in any portion of the lung revealed enormous numbers of tubercle bacilli. The mucus in the bronchial tubes throughout the lungs also contained large numbers of tubercle bacilli. In the larger animal the liver, spleen, kidneys, peritoneum, and diaphragm were normal. The animal lost 18 pounds in weight in the 22 days of its life after inoculation. The smaller goat showed involvement of the abdominal organs also. The omentum was studded with pearly tubercles two millimetres in diameter, one of which had undergone caseation. The surface of the spleen was thickly covered with tubercles one millimetre in diameter. In the substance of the spleen no nodules could be found, but scrapings from cut surfaces showed a large number of tubercle bacilli. The liver showed no macroscopic tubercles, but scrapings from cut surfaces were rich in bacilli, and in sections under the microscope tubercles were seen with a few giant cells. Microscopic examination of the lungs, however, revealed no tubercles. The infection in this animal was diffuse and it is considered to be a case of tuberculous septicæmia. Both of the goats inoculated with Culture K (human) gained in weight and were killed after six months and 21 days. Both were in good condition, having a considerable amount of fat in the subcutaneous tissues and around the abdominal organs. In the larger animal at the

point of inoculation there was an area of adhesion to the pleura about eight millimetres in diameter. On the surface of the left lung were two or three nodules about three millimetres in diameter which had undergone caseation. This lung is attached at its lower edge to the diaphragm by fringes of fibrin, and along this edge a few nodules about 12 millimetres in diameter and containing cheesy pus were found. The entire surface of the left lung was covered with fringes of fibrin of a reddish-pink colour. In both lungs the elasticity was preserved and neither revealed nodules either by palpation or on section. The left pleura was covered with a network of fibrin similar to that seen in the lung; the right was normal. The mediastinal glands were much enlarged and calcareous. In the liver two small nodules were found near the surface, the organ being otherwise normal. In the smaller animal the omentum contained upwards of 100 nodules from two to 12 millimetres in diameter. The left lung was attached to the pleura at its edge by numerous bands of fibrin and at its posterior surface to the diaphragm in the same manner. Along the lower border were a number of nodules about six millimetres in diameter which had undergone caseation. The right lung was normal. The mediastinal glands were enlarged and calcareous. The left pleura showed 10 or 12 nodules six millimetres in diameter, which were cheesy, besides a large one corresponding to the point of inoculation. The diaphragm was attached to the spleen and to the stomach by bands of fibrin, but no nodules were found. The liver was normal; the portal glands were enlarged and contained many cheesy nodules. The left kidney contained a number of cheesy nodules. The right kidney was normal. The mesenteric glands were enlarged and several of them contained calcareous areas.

The comparative virulence of Culture H (bovine) and Culture K (human) for puppies and pigs when introduced through the alimentary tract was as follows:—

Puppies.—Four puppies eight weeks old, from the same litter, were selected; two of them received a suspension in milk of Culture H (bovine), and two a similar suspension of Culture K (human), equal amounts being given on 10 days—six days in succession, with an interval of seven days, then four days in succession. The regular food was sterilised milk, bread, and boiled beef. Only one of the four puppies died—the one which received Culture K (human)—death occurring after 57 days. There was a generalised tuberculosis most marked in the lungs and liver. The other puppy of this pair was killed after 85 days. The only lesions found were small cheesy nodules on the surface of one lung, in the parotid and mesenteric glands. The two puppies fed with Culture H (bovine) showed no ill-effects whatever and were killed on the eighty-fifth and eighty-seventh days respectively. Both were in good condition, the only lesions found being in the parotid and mesenteric glands, which contained minute caseous areas, none larger than 2 millimetres in diameter.

Pigs.—As with the puppies, four pigs from the same litter, eight weeks old, were taken, two being fed with Culture K (human) and two with Culture H (bovine), equal amounts of a suspension in sterile water being soaked into bread and given for 10 days, with an intermission of only one day. The regular food was sterilised milk, ground oats, bran, and corn meal. All four of the pigs died, the average life of the two fed with human bacilli being 118½ days, as against 100½ days for the two which received the bovine culture. One pig of each pair lived 123 days, dying on the same day. The total difference in gain of weight was only half a pound. All showed post mortem a generalised tuberculosis. While some differences were noticed in the extent of the disease in various organs it cannot be said that these were such as to indicate a greater virulence of one culture than the other. In all, the mesenteric glands were extensively diseased, while in one only, fed with bovine bacilli, was there ulceration of the mucous membrane of the intestine. Three of the four showed tuberculous ulceration of the tonsils. The remaining one presented no gross changes in this gland, but microscopically areas of necrosis, apparently in the lymph follicles, were found, and sections stained with carbol-fuchsin revealed large numbers of tubercle bacilli. The two pigs which lived longest, one of which had received bovine culture and one human culture, both had extensive involvement of the joints, so that for several weeks before death walking was almost impossible.

The result of this experiment is inconclusive as far as the puppies are concerned except as showing that they are readily infected through the alimentary tract. The pigs showed practically an equal susceptibility to the two cultures. The ease with which they were infected and the extent of the lesions produced in so short a time were both most striking features and should serve to put farmers on their guard against feeding their swine on milk from tuberculous cattle. In Pennsylvania we have observed several instances in which neglect of this precaution has led to considerable loss.

The cultures included in Table III. were all recovered from animals which had been inoculated or fed with Culture H and Culture K. Their virulence was tested only for rabbits and guinea-pigs. The most striking thing to be noticed in the results is the increase in virulence in the human bacillus recovered from the hogs, K (D) and K (E). The average length of life for guinea-pigs after inoculation with the original Culture K was 38 days, while the rabbits were killed after eight months and 23 days, showing successfully resisted infection. On the other hand, the culture recovered from the hogs killed guinea-pigs in 29½ and 32½ days and rabbits in 71½ and 62½ days respectively, showing a virulence for these animals which corresponds to that seen in bovine cultures. Culture H (E) was recovered from a nodule on the hand of Dr. S. H. Gilliland who accidentally inoculated himself whilst making a post-mortem examination of one of the goats which had succumbed to the original Culture H. Particular interest attaches, therefore, to this culture. No marked difference can be detected in the virulence of this culture as compared with the original. Considerable difference has been noted in the readiness with which the recovered cultures grew in the early generations. Cultures H (A), H (B), H (D), and H (F) all grew vigorously from the start, the last three growing without any stirring of the tissue on the original tubes, while Culture H (G) grew on tubes sealed with paraffin, a result which I have been able to obtain only with the human bacillus, with this exception. The morphology of all the recovered cultures corresponded closely to the original.

The following is the comparison and history of other human and bovine cultures (see Table IV.):—

Culture F (bovine) was obtained from a large tumour on the diaphragm of a cow which had been slaughtered for beef. The tumour was 13 centimetres long and from seven to nine centimetres in diameter. On the surface were a number of grape-like masses of pearly lustre. On section numerous caseous areas were found from which an emulsion was made. It contained many tubercle bacilli. A guinea-pig was inoculated intra-peritoneally May 16th, 1899. Death occurred on June 8th and from tissues a second pig was inoculated intra-peritoneally. This pig was chloroformed July 31st and a third pig inoculated in the same manner; this third pig was chloroformed August 21st and cultures were made from the spleen and omentum. Scanty growth was observed on Sept. 27th. Under the microscope the bacilli were thick, short, and showed little tendency to beading, staining deeply and uniformly. The further history of this culture is given in the paragraph on "Retention of Characteristics in Culture."

Culture Q (bovine) was obtained from the lungs of a cow No. 5986. This cow was brought to our department on July 6th, 1898, for experimental purposes, being considered then to be in an advanced stage of tuberculosis. The animal was emaciated and coughing badly. Many tubercle bacilli were found in the mucus it coughed up; these were long, thin, and much beaded. The animal died Feb. 12th, 1900. The lungs were infiltrated throughout, many of the areas having undergone caseation and calcification. It was difficult to understand how the animal had lived as long as it did. The mediastinal glands formed a tumour 35 centimetres long by 15 centimetres in diameter, which was cheesy on section. The mesenteric glands were enlarged and cheesy. A guinea-pig was inoculated in the peritoneal cavity on Nov. 15th, 1899. On Nov. 30th the animal was killed and cultures were made. Growth was observed first on Jan. 10th, 1900, and sub-cultures were made on the same date. Growth was always scanty.

Culture QQ (bovine) was obtained from the mesenteric gland of cow No. 5986. An emulsion from the centre of the gland was inoculated into the peritoneal cavity of a guinea-pig on Feb. 13th, 1900. On March 5th it was chloroformed and cultures were made. Growth was observed on April 12th and sub-cultures were made on April 17th. Growth was more abundant than that of the preceding cultures (Q), but still scanty.

Culture T (bovine) was obtained from milk sent in for examination by a dairyman in Philadelphia. It was inoculated

into the peritoneal cavity of a guinea-pig Jan. 24th, 1900. The guinea-pig was chloroformed on April 6th. With an emulsion of its spleen two other guinea-pigs were inoculated intra-peritoneally on the same date. One of these was chloroformed on April 28th and cultures were made. Growth was observed first on June 23rd and cultures were made the same day. Growth was abundant and luxuriant.

Culture U (human) was obtained from a child, three years of age, whose death was due to tuberculous meningitis. At the necropsy the lungs and bronchial lymphatic glands were full of miliary tubercles. The anterior mediastinal glands were much enlarged. The spleen was extensively involved, but the liver less so. On the abdominal surface of the diaphragm were a number of flat yellow nodules. The mesenteric glands were enlarged and contained old yellow, cheesy nodules. One small tubercle was found in the right suprarenal body. Purulent and cheesy nodules were found in the meninges and in the encephalon. The culture was obtained from the mesenteric glands. The pathologist, Dr. Hand, was uncertain as to the origin of this case. Guinea-pigs were inoculated intra-peritoneally on June 15th, 1900. One was killed on July 23rd and with its tissues a second was inoculated intra-peritoneally. This was chloroformed on Sept. 12th and cultures were made. On Oct. 11th, no growth having taken place, the blocks of tissue were transferred to fresh serum and stirred. On Dec. 4th growth was first observed and on Dec. 15th sub-cultures were made. Growth has since been rapid and abundant.

Culture W (human). Obtained from a child nine months old, of scrofulous parentage. The cervical glands on both sides were enlarged. At the necropsy a double broncho-pneumonia was found. One small tuberculous nodule was found on the surface of the left lung and several at the apex of the right lung. The bronchial glands were not enlarged. The tonsils were normal in size, but the glands on each side of the pharynx extending in front of and behind the sterno-mastoid muscle were enlarged and tuberculous, and several contained creamy pus. Three mesenteric glands were enlarged and cheesy; an ulcer was found in the jejunum and another at the ileo-cæcal valve. Peyer's patches and the lymphatic glands about the cæcum were enlarged. The spleen and the liver contained tubercles. The mesenteric glands were employed for the isolation of the culture. This case was considered by Dr. Hand as being probably of tonsillar or pharyngeal origin. Guinea-pigs were inoculated intra-peritoneally on Oct. 5th, 1900. From one which died on Jan. 4th, 1901, a second was inoculated intra-peritoneally. This was killed on March 4th and cultures were made. Growth was first observed on April 12th and sub-cultures were made the following day.

Culture BB (human) was obtained from a child 17 months of age. Death was due to tuberculous meningitis. At the necropsy the lungs were normal, except the posterior and part of the right upper lobe, which was consolidated, red on section, and had excess of connective tissue. The bronchial and mediastinal glands were not enlarged. The spleen, the liver, and the kidneys showed pearly tubercles. Two feet from the lower end of the ileum was an ulcer one centimetre by two centimetres, the long diameter of which was transverse to the axis of the gut. Nodules were seen on the peritoneal surface. Four small ulcers, two above and two below, were found in the ileum. The mesenteric glands were enlarged and cheesy and some were purulent. The meninges showed yellow tubercles, most marked along the longitudinal fissure, in the choroid plexus, and over the cerebellum. The mesenteric glands were used in obtaining the culture. This case was considered by Dr. Hand to be the clearest one of primary intestinal tuberculosis ever seen by him. Guinea-pigs were inoculated intra-peritoneally with an emulsion made from the mesenteric glands on March 9th, 1901. One was chloroformed on April 1st and cultures were made. Scanty growth on one tube was found on June 8th and sub-cultures were made.

The results given in Table IV. show for all the bovine cultures a greater virulence than for any of the human cultures. The average life of the guinea-pigs inoculated with human bacilli was more than twice that of those inoculated with bovine. All the rabbits which received human cultures gained in weight and had finally to be killed, while for the bovine they died, and presented, post mortem, extensive lesions, the lungs and kidneys being the chief seats of the disease in all animals.

(To be continued.)

THE MORTALITY FROM PHTHISIS AND FROM OTHER TUBERCULOUS DISEASES CONSIDERED IN SOME ASPECTS WHICH MAY BE DEMONSTRATED BY MEANS OF LIFE-TABLES.[1]

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HERE are gathered together those who are most competent to make clear the conditions under which the battle is raging between tubercle bacilli and the human race, to explain how these, it may be, originally saprophytic fungi have acquired the power of existing in, and preying upon, living animal bodies, and under what circumstances these latter may have their vital resisting power so lowered that they fall a readier prey to their assailants. Here also are those who by position and capacity are best able to plan and to arrange details of sanitary administration which shall give effect to the scientific knowledge laboriously attained by those who have made study of life and disease. Others, too, are here who in various ways have sought to throw light upon the problems involved by means of statistical methods. There is need on a field of battle for some to be told off to count the numbers of the killed and wounded, and without unduly exalting the position of statisticians it may be claimed that those who in the past as well as at present have been working at vital statistics have had some share in awakening the great public interest and attention of which this Congress is the outcome. Exact representations of the numbers of the living who year by year are being cut off by the germs of tuberculosis, together with gradually increasing certainty that phthisis and other tuberculous diseases are to a very large extent *preventable*, have brought together this great assembly. The simplest mode of statistical representation, of course, is merely to show how many die out of so many living. The next step in advance is by classifying the living population and the deaths into age and sex groups to show the special incidence of the mortality from some particular disease in the respective sexes, and at different periods of life. But instead of asking how many die from a disease out of a thousand or million living we may ask, supposing that this disease could be made extinct, *how many more would be alive at certain ages and how much longer would they live?* Now these questions can be answered by means of life-tables.

In some respects this Congress is being held at an unfortunate time. A year hence it might have been possible to utilise the data of the census recently taken and also the tabulated mortality for the decennium just completed, 1891–1900, and so to have obtained results brought down to a very recent period. As it is we have to go back to the numerical facts relating to the decennium 1881–90. What I propose to do is to show how the life-table for England and Wales for 1881–90 would have been affected supposing there had been during the period no deaths from phthisis or from the other tuberculous diseases, and that all the other causes of mortality had retained their proportional intensity. This is, of course, a mere hypothesis, but it is a necessary working hypothesis. It is possible that the extinction of one kind of disease germs might leave room for the more active development and diffusion of other kinds, but we can only work on the assumption already made that if some one disease should be eliminated those saved from dying from it will be exposed to the chances of all other diseases in the same proportion as before, and that their average exposure to these chances will be for half the year. This is not the time or place for going into details as to what a life-table is or how it is constructed. Such knowledge has to be assumed as possessed by those addressed. I would, however, desire to emphasise the fact that the work of constructing a complete or "extended" life-table—that is, one for every separate year of life—entails an enormous amount of laborious calculation, and that if the object be to have not merely one life-table but a series of life-tables to compare with each other it is practically impossible for one unaided individual to undertake the labour of doing the work by an extended method. The existing duration of life is too

[1] A paper communicated to the British Congress on Tuberculosis. Section I., State and Municipal.

short—one would need to be a Methuselah. Even the late Dr. William Farr, with his untiring industry and with the advantage of a staff of trained calculators to help him, employed for the purpose of some comparative life-tables, based on the mortality of England and Wales, for the decennium 1861–70, which were published in the Supplement to the Thirty-fifth Annual Report of the Registrar-General, a short or abbreviated method, details of which are given in the same supplement. Another point which I would wish to lay special stress upon is that, in order to be fairly comparable with each other the life-tables must be calculated by the same method. If the occasion permitted I could give ample proof of this by comparative figures, worked out from the same data by different methods. Now, in some experimental work on life-table calculation I happened about three years ago to hit upon some very simple modifications of Dr. Farr's original method of constructing a short life-table, which gave results approximately to those of an extended life-table with remarkable closeness.[1] By this method the expectation of life can be

TABLE I.—*Comparison of Life-table Results as regards Mean Expectation of Life obtained by (a) an Extended Method, and (b) the Modified Short Method used in the Construction of the Succeeding Tables.**

A.—Expectation of Life or Mean after Lifetime at exact age x.

Age.	Males.			Females.		
x.	a.	b.	Differences of b from a.	a.	b.	Differences of b from a.
0	43·28	43·32	+ 0·04	46·66	46·67	+ 0·01
5	52·24	52·30	+ 0·06	54·26	54·27	+ 0·01
10	48·59	48·65	+ 0·06	50·64	50·65	+ 0·01
15	44·28	44·33	+ 0·05	46·40	46·40	± 0·00
25	36·28	36·34	+ 0·06	38·50	38·51	+ 0·01
35	28·91	28·87	− 0·04	31·16	31·08	− 0·08
45	22·06	22·04	− 0·02	24·05	24·01	− 0·04
55	15·74	15·71	− 0·03	17·23	17·12	− 0·11
65	10·31	10·24	− 0·07	11·26	11·17	− 0·09
75	6·10	6·06	− 0·04	6·68	6·62	− 0·06
85	3·29	3·32	+ 0·03	3·71	3·69	− 0·02
95	1·72	1·72	± 0·00	2·05	1·97	+ 0·08

* The foundation data are those for England and Wales 1881–90, but for (a) the official life-table has been modified by the calculation of a new set of p_x values from p_5 to p_{94}, the other p_x values having been left unaltered.

B.—Showing how the Total Expectation of Life at Birth is Distributed with Respect to the Age-periods indicated.

Age-period.	Males.			Females.		
	a.	b.	Differences of b from a.	a.	b.	Differences of b from a.
0— 5	4·02	4·02	± 0·00	4·16	4·16	± 0·00
5—15	7·33	7·34	+ 0·01	7·63	7·65	+ 0·02
15—25	7·05	7·03	− 0·02	7·35	7·33	− 0·02
25—35	6·62	6·61	− 0·01	6·90	6·89	− 0·01
35—45	5·97	5·97	± 0·00	6·30	6·30	± 0·00
45—55	5·10	5·10	± 0·00	5·55	5·54	− 0·01
55—65	3·91	3·91	± 0·00	4·49	4·48	− 0·01
65—	3·28	3·34	+ 0·06	4·28	4·32	+ 0·04
Total	43·28	43·32	+ 0·04	46·66	46·67	+ 0·01

C.—Mean Expectation of Life of the Individuals at all Ages from x to x + n comprised within the Age-groups x to x + n indicated.

Age groups x to x + n.	Males.			Females.		
	a.	b.	Differences of b from a.	a.	b.	Differences of b from a.
0— 5	51·76	51·76	± 0·00	54·07	54·07	± 0·00
5—10	50·57	50·58	+ 0·01	52·60	52·56	− 0·04
10—15	46·43	46·49	+ 0·06	48·52	48·53	+ 0·01
15—25	40·27	40·33	+ 0·06	42·44	42·46	+ 0·02
25—35	32·60	32·61	+ 0·01	34·83	34·82	− 0·01
35—45	25·51	25·48	− 0·03	27·66	27·65	− 0·01
45—55	18·95	18·93	− 0·02	20·67	20·63	− 0·04
55—65	13·09	13·06	− 0·03	14·30	14·24	− 0·06
65—75	8·35	8·34	− 0·01	9·08	9·06	− 0·02
75—85	4·94	4·94	± 0·00	5·41	5·41	± 0·00
85—95	2·80	2·78	− 0·02	3·16	3·11	− 0·05
95—	1·57	1·62	+ 0·05	1·86	1·87	+ 0·01

TABLE II.—*Life-table for England and Wales for the Decennium 1851–60 based on the true Mean Numbers Living deduced from the Census Returns of 1851 and 1861 and on the Deaths from all Causes during the Ten Years 1851–60.*

Age.	Chance of living one year in the interval from age x.		Number of survivors at age x out of a million born.		Expectation of life, or mean after-lifetime at age x, expressed in years.	
	p_x.		l_x.		E_x.	
x	Males.	Females.	Males.	Females.	Males.	Females.
0	0·83236	0·86227	1,000,000	1,000,000	42·08	42·15
1	0·93537	0·93820	832,364	862,266	47·06	47·82
2	0·96502	0·96527	778,567	808,980	49·28	49·93
3	0·97607	0·97596	751,326	780,882	50·04	53·71
4	0·98225	0·98222	743,353	762,110	50·26	50·95
5	0·99149	0·99158	720,337	748,569	50·16	50·86
10	0·99512	0·99494	690,211	717,585	47·24	47·95
15	0·99230	0·99305	673,528	699,616	43·35	44·12
25	0·99046	0·99010	623,450	645,945	36·43	37·37
35	0·98754	0·98786	566,449	584,755	29·51	30·77
45	0·98212	0·98483	499,705	517,529	22·80	24·12
55	0·96944	0·97322	417,238	444,190	16·34	17·30
65	0·93646	0·94276	305,883	338,585	10·53	11·19
75	0·86297	0·87380	158,655	187,797	6·03	6·45
85	0·73198	0·74700	38,343	48,731	3·29	3·48
95	0·55138	0·56783	1,605	2,637	1·73	1·81

TABLE III.—*Showing the Differences from Table II. produced by Excluding Phthisis as a Cause of Mortality in England and Wales during 1851–60.*

Age.	Chance of living one year in the interval from age x.		Number of survivors at age x out of a million born.		Expectation of life or mean after-lifetime at age x, expressed in years.	
	p_x.		l_x.		E_x.	
x	Males.	Females.	Males.	Females.	Males.	Females.
0	+0·00206	+0·00188	—	—	+3·37	+4·01
1	+0·00171	+0·00166	+ 2,053	+ 1,882	+3·92	+4·54
2	+0·00097	+0·00100	+ 3,352	+ 3,201	+4·09	+4·75
3	+0·00059	+0·00063	+ 3,987	+ 3,901	+4·19	+4·86
4	+0·00050	+0·00058	+ 4,336	+ 4,301	+4·25	+4·94
5	+0·00052	+0·00062	+ 4,629	+ 4,670	+4·30	+5·00
10	+0·00076	+0·00129	+ 6,270	+ 6,718	+4·35	+5·04
15	+0·00317	+0·00388	+ 8,712	+11,132	+4·26	+4·83
25	+0·00400	+0·00454	+28,508	+36,414	+3·16	+3·41
35	+0·00396	+0·00414	+50,256	+61,887	+2·06	+1·99
45	+0·00378	+0·00308	+66,567	+79,212	+1·14	+0·97
55	+0·00321	+0·00230	+73,966	+84,209	+0·51	+0·40
65	+0·00217	+0·00152	+66,361	+73,829	+0·16	+0·12
75	+0·00079	+0·00062	+38,931	+44,631	+0·04	+0·02
85	+0·00034	+0·00031	+ 9,433	+12,010	+0·01	+0·01
95	—	—	+ 421	+ 663	—	—

[1] For a description of the methods and for comparative figures, in illustration and proof, reference may be made to Public Health, vol. xi., page 330, July, 1898, and to the Journal of the Royal Statistical Society,

calculated at quinquennial age-intervals, with results differing by only from 0·01 to 0·10 of a year, from the result obtainable by what I believe to have been the most accurate extended method—that is practically only varying to the extent of from a few days to a few weeks. *Indeed, the results approximate much more closely than do those obtained by extended life-tables worked out by different methods.* It has been, perhaps, necessary to say so much in support of the claim to be made that the method which has been adopted in working out the appended tables is a sufficiently accurate instrument for statistical research. Table I., with its three divisions—A, B, and C—is intended to illustrate and support this preliminary claim. What has been hitherto published of the references already given has relation only to the results in division A; certain other simple devices, by which the short method may be made to yield the results set down in divisions B and C, have occurred to me while engaged in preparing this communication. At some time ere long I hope to publish the details of the arithmetical methods employed. The other tables will to a large extent be left to speak for themselves. The data upon which the calculations have been made are to be found in the Annual Report and Decennial Supplements of the Registrar-General. As it seemed desirable to make at least one comparison with an earlier period I have prepared Tables II. and III., which are intended to demonstrate the effect of excluding phthisis as a cause of mortality in England and Wales during the 10 years 1851–60. Table II. is one of a series as yet unpublished. Table III. has the same relation to Table II. as Table V. has to Table IV. The comparison serves to further illustrate what already was evident by the ordinary death-rate—that the mortality from phthisis has much diminished. Some of the decrease may be, of course, only apparent—we have to consider the less accuracy of diagnosis at the early period and also possible cyclical variations in the intensity of the disease; but the opinion is at least very generally held that a large proportion of the lessened mortality is real and is the result of improved sanitation and bettered conditions of life. Attention may be specially directed to the altered sex incidence of this disease, the mortality being greater among females in 1851–60, from age two to age 35, whereas, except at ages four, five, 10, and 15, during 1881–90, it was greater among males. The remaining Tables relate to the 10 years 1881–90. Tables IV., V., and VI. afford answers to these three questions—supposing that (1) phthisis and (2) the whole group of tuberculous dieases had had no existence as causes of mortality in England and Wales during 1881–90, at each of the ages indicated respectively—(*a*) how much greater would have been the chance of surviving to the end of one year? (*b*) how many more would be living at each age? and (*c*) how much greater would be the mean expectation of life, or, in other words, the mean after-lifetime of each age? With regard to the *lx* columns—that is, the successive numbers of survivors at age *x*—it must be borne in mind that the results of the short method are more and more in excess of those obtained by the extended method from about 25 years of age onwards. However, as the three Tables IV., V., and VI. are worked out by the same method the results are fairly comparable in their proportions to each other. The *Ex* columns are of the greatest importance, and these, as has been shown, are practically identical with those to be obtained by the extended method. The fact which stands out from all

TABLE IV.—*Life-table for England and Wales for the Decennium 1881–90, based on the Data of the Official Life-table, but Calculated by the same Modified Short Method as that Used for the Other Tables in the Series.*

Age.	Chance of living one year in the interval from age *x*.		Number of survivors at age *x* out of a million born.		Expectation of life, or mean after-lifetime at age *x*, expressed in years.	
	px.		*lx*.		*Ex*.	
x.	Males.	Females.	Males.	Females.	Males.	Females.
0	0·83896	0·86887	1,000,000	1,000,000	43·32	46·67
1	0·94270	0·94729	838,964	868,874	50·56	52·66
2	0·97617	0·97700	790,891	823,072	52·61	54·56
3	0·98461	0·98487	772,046	804,142	52·88	54·83
4	0·98859	0·98898	760,167	791,973	52·70	54·66
5	0·99467	0·99475	751,494	783,244	52·30	54·27
10	0·99705	0·99629	731,669	762,910	48·65	50·65
15	0·99504	0·99504	720,942	751,135	44·33	46·40
25	0·99226	0·99265	685,947	714,724	36·34	38·51
35	0·98768	0·98948	634,654	663,880	28·87	31·08
45	0·98080	0·98500	560,634	597,164	22·04	24·01
55	0·96587	0·97192	461,836	513,394	15·71	17·12
65	0·93190	0·94133	326,327	386,134	10·24	11·17
75	0·86328	0·87726	161,189	210,907	6·06	6·62
85	0·73462	0·76126	57,056	56,934	3·32	3·69
95	0·54941	0·56522	1,696	3,721	1·72	1·97

TABLE V.—*Showing the Difference from Table IV. produced by Excluding Phthisis as a Cause of Mortality in England and Wales during the 10 Years 1881–90.*

Age.	Chance of living one year in the interval from age *x*.		Number of survivors at age *x* out of a million born.		Expectation of life, or mean after-lifetime at age *x*, expressed in years.	
	px.		*lx*.		*Ex*.	
x.	Males.	Females.	Males.	Females.	Males.	Females.
0	+0·00088	+0·00076	—	—	+2·58	+2·57
1	+0·00074	+0·00072	+ 874	+ 756	+3·02	+2·90
2	+0·00039	+0·00037	+ 1,442	+ 1,345	+3·15	+3·02
3	+0·00030	+0·00027	+ 1,710	+ 1,619	+3·21	+3·07
4	+0·00023	+0·00026	+ 1,883	+ 1,816	+3·24	+3·11
5	+0·00025	+0·00033	+ 2,039	+ 2,007	+3·27	+2·12
10	+0·00034	+0·00070	+ 2,912	+ 3,209	+3·29	+3·11
15	+0·00177	+0·00205	+ 4,113	+ 5,810	+3·26	+2·98
25	+0·00301	+0·00278	+16,284	+20,510	+2·58	+2·19
35	+0·00352	+0·00271	+35,065	+38,430	+1·75	+1·29
45	+0·00342	+0·00202	+52,430	+52,048	+0·96	+0·61
55	+0·00278	+0·00146	+61,072	+56,299	+0·41	+0·25
65	+0·00164	+0·00089	+53,939	+48,815	+0·12	+0·08
75	+0·00069	+0·00036	+29,986	+28,926	+0·02	+0·01
85	+0·00018	+0·00013	+ 7,196	+ 8,074	+0·01	+0·00
95	—	—	+ 334	+ 535	—	—

TABLE VI.—*Showing the Difference from Table IV. produced by Excluding Phthisis and all other Tuberculous Diseases as Causes of Mortality in England and Wales during the 10 Years 1881–90.*

Age.	Chance of living one year in the interval from age *x*.		Number of survivors at age *x* out of a million born.		Expectation of life or mean after-lifetime at age *x*, expressed in years.	
	px.		*lx*.		*Ex*.	
x.	Males.	Females.	Males.	Females.	Males.	Females.
0	+0·01007	+0·00785	—	—	+3·26	+3·72
1	+0·00539	+0·00524	+10,062	+ 7,844	+3·94	+3·76
2	+0·00274	+0·00228	+14,910	+12,025	+3·79	+3·65
3	+0·00156	+0·00143	+16,762	+13,654	+3·72	+3·60
4	+0·00123	+0·00113	+17,734	+14,621	+3·69	+3·58
5	+0·00081	+0·00087	+18,486	+15,375	+3·66	+3·54
10	+0·00063	+0·00103	+21,062	+18,375	+3·54	+3·39
15	+0·00196	+0·00226	+23,092	+22,064	+3·44	+3·18
25	+0·00314	+0·00291	+36,087	+37,855	+2·73	+2·29
35	+0·00363	+0·00282	+54,825	+55,929	+1·81	+1·35
45	+0·00352	+0·00210	+71,201	+68,943	+0·99	+0·64
55	+0·00288	+0·00154	+77,658	+71,616	+0·42	+0·26
65	+0·00173	+0·00096	+66,416	+60,874	+0·12	+0·09
75	+0·00063	+0·00040	+26,432	+35,769	+0·02	+0·01
85	+0·00019	+0·00015	+ 8,706	+ 9,962	+0·01	+0·00
95	—	—	+ 404	+ 660	—	—

vol. lxii., parts 3 and 4, September and December, 1899. My friend Dr. A. Newsholme has also done me the honour to insert a description of this method in the last edition of his well-known work on "Vital Statistics" (see Chapter xxiii., page 279).

others is that *if there had been no phthisis the average length of life for each individual born would have been increased by two and a half years.* Another prominent fact is that those who have survived to the age of 15 years would have their average expectation of life increased by about three and a quarter years. Now these hypothetical results are greater than those which would be obtained by abolishing the whole group of ailments classed together as "the seven principal zymotic diseases." As regards the three diseases to combat which the expensive machinery of isolation hospitals chiefly exists—viz., typhoid fever, scarlet fever, and diphtheria—if they could be entirely exterminated the average increase in length of life of those at birth would only be increased by about a year, and those at age 15 would only have about the fourth part of a year to add to their life expectation. Table VI. brings out prominently the fact that the group of tuberculous diseases other than phthisis exert their maximum efforts at the earlier ages of life, these being more marked during the first five years, and after 15 years becoming comparatively insignificant. There is another aspect, however, under which the increased length of life brought about by doing away with phthisis may be considered. It has been seen from Table V. that those at the very outset of life would on the average have two and a half years longer to live. Now it is of importance to ascertain, if

TABLE VII.—*Showing how the Increased Expectation of Life at Birth represented in Table V. as produced by Eliminating Phthisis, would be Distributed over the Periods of Life indicated, and also a comparison with a similar Distribution of the Expectation of Life at Birth calculated in Table IV.*

Life period.	Age-limits of period.	Length of period in years.	Males. Values from Table IV. *b*.	Males. Values from Table V. *c*.	Males. Differences of *c* from *b*.	Females. Values from Table IV. *b*.	Females. Values from Table V. *c*.	Females. Differences of *c* from *b*.
Infancy.	0- 5	5	4·02	4·02	± 0·00	4·16	4·17	± 0·01
School-age.	5-15	10	7·34	7·37	+ 0·03	7·65	7·69	+ 0·04
Working-period of life.	15-25	50	7·03	7·14	+ 0·11	7·33	7·46	+ 0·13
	25-35		6·61	6·86	+ 0·25	6·89	7·19	+ 0·30
	35-45		5·97	6·41	+ 0·44	6·30	6·75	+ 0·45
	45-55		5·10	5·67	+ 0·57	5·54	6·09	+ 0·55
	55-65		3·91	4·49	+ 0·58	4·48	5·00	+ 0·52
Totals for working period of life			26·62	30·57	+ 1·95	30·54	32·49	+ 1·96
Decline	65 and upwards.	—	3·34	3·94	+ 0·60	4·32	4·89	+ 0·57
Total	All ages.	—	43·32	45·90	+ 2·58	46·67	49·24	+ 2·57

TABLE VIII.—*Showing the Results of Tables IV., V., and VI., Re-worked out so as to give the Mean Expectation of Life possessed by the Individuals at all ages from x to x + n comprised within the respective Age-groups x to x + n indicated.*

Age groups *x* to *x* + *n*.	Males. *b*.	Males. *c*.	Males. *d*.	Females. *b*.	Females. *c*.	Females. *d*.
0—5	51·76	+ 2·680	+ 3·290	54·07	+ 2·380	+ 3·070
5—10	50·58	+ 3·280	+ 3·600	52·56	+ 3·115	+ 3·465
10—15	46·49	+ 3·275	+ 3·490	48·53	+ 3·045	+ 3·285
15—25	40·33	+ 2·920	+ 3·085	42·46	+ 2·565	+ 2·735
25—35	32·61	+ 2·165	+ 2·270	34·82	+ 1·740	+ 1·820
35—45	25·48	+ 1·356	+ 1·400	27·65	+ 0·960	+ 0·995
45—55	18·93	+ 0·685	+ 0·705	20·63	+ 0·430	+ 0·450
55—65	13·06	+ 0·285	+ 0·270	14·24	+ 0·165	+ 0·175
65—75	8·34	+ 0·070	+ 0·070	9·06	+ 0·045	+ 0·050
75—85	4·94	+ 0·015	+ 0·015	5·41	+ 0·005	+ 0·005
85—95	2·78	+ 0·006	+ 0·005	3·11	± 0·000	± 0·000
95—	1·62	± 0·000	± 0·000	1·87	± 0·000	± 0·000

The values deduced from Table IV. are headed by (*b*); the differences produced by eliminating phthisis are headed by (*c*); and the differences produced by eliminating phthisis and all other tuberculous diseases by (*d*).

TABLE IX.—*Showing, expressed in Years, the Total Life Capital in England and Wales at the Middle of the Year 1891, and to what extent this Life Capital would have been Increased by Eliminating (1) Phthisis and (2) all other Tuberculous Disease as Causes of Mortality.*

Age groups.	Males. (*b*)	Males. (*c*)	Males. (*d*)
0— 5	91,741,447	4,750,137	1,258,431
5—10	85,887,276	5,569,598	843,375
10—15	75,095,517	5,290,124	347,291
15—25	109,697,880	7,942,420	448,801
25—35	68,310,689	4,535,193	219,952
35—45	41,163,567	2,189,035	72,639
45—55	22,622,863	818,630	23,902
55—65	10,085,599	204,617	3,861
65—75	3,720,674	31,229	0
75—85	720,608	2,188	0
85—95	44,116	79	0
95—	642	0	0
Total at all ages	509,090,868	31,333,250	2,918,312

Age groups.	Females. (*b*)	Females. (*c*)	Females. (*d*)
0—5	90,831,607	4,262,241	1,236,691
5—10	89,694,020	5,315,770	897,277
10—15	78,480,820	4,994,256	388,119
15—25	122,824,802	7,477,675	433,908
25—35	79,913,154	3,993,353	183,603
35—45	47,626,288	1,636,346	77,511
45—55	26,998,237	562,736	26,174
55—65	12,664,018	146,729	4,447
65—75	4,961,028	24,591	0
75—85	1,049,957	970	0
85—95	82,788	0	0
95—	1,793	0	0
Total at all ages	561,118,572	28,344,687	2,946,730

Sums of males and females—(*b*) 1,070,209,440; (*c*) 59,677,937; (*d*) 5,965,042.

—	—	Average life capital for each individual living. Increase by eliminating phthisis.	Average life capital for each individual living. Further increase by eliminating all other tuberculous diseases.	—	Proportion per cent. of life capital expended in a year. With phthisis eliminated.	Proportion per cent. of life capital expended in a year. With phthisis and all other tuberculous diseases eliminated
	(*b*)	(*c*)	(*d*)	(*b*)		
Males ...	36·13	2·22	0·21	2·768	2·608	2·594
Females	37·43	1·89	0·20	2·672	2·543	2·530
Persons	36·80	2·05	0·21	2·718	2·574	2·560

The calculations have been based (1) on the numbers given in the preceding Table VIII., and (2) on the numbers given in the census report, 1891, Vol. IV., Table 12, page 106, as representing the estimated population of England and Wales living at the middle of the year 1891, classified into age and sex groups. Life capital deduced from Table IV. is headed by (*b*), addition by eliminating phthisis by (*c*), and further addition by eliminating all other tuberculous diseases by (*d*).

possible, how much of this added life would be lived during the part of life extending from age 15 to age 65, which may be considered as the working period of life? This question is answered by Table VII., which shows that the *working period of life would be lengthened on the average by very nearly two years*. The matter may be illustrated in yet another way. The *Ex* values in Tables IV., V., and VI. apply to those *at the exact age x*, but if these values can be translated into those applying to age-groups, that is, into average values of expectation of life with relation to all the individuals at all ages from x to $x + n$ comprised within the respective age-groups x to $x + n$ (for example, from birth to age five, from age five to age 10, &c.), we shall then have a ready method of calculating what has been happily termed the "*Life-capital*" of a whole community. In Table VIII. such values have been worked out, and in Table IX. they have been used to show what was the total life-capital of the population of England and Wales as it existed at the middle of the year 1891, and to what extent the life-capital would have been increased (1) by abolishing phthisis and (2) by doing away with all other tuberculous diseases. A diagram also represents the results graphically to scale. However, the one striking and outstanding fact, which can-

The areas of the parallelograms represent to scale the life-capital of the respective age-groups numerically stated in Table IX. The columns indicate the life-capital deduced from Table IV. The transversely marked tops to the columns indicate the increase of life-capital after excluding phthisis. The vertically marked tops to the columns indicate the still further increase of life-capital after excluding all other tuberculous diseases.

not be emphasised more than by the mere statement of it, is that if phthisis had not existed as a cause of mortality in England and Wales every person living in the year 1891 would have had an average increase in life-capital of two years, and that the abolition of all other tuberculous diseases would only have increased the average life-capital by the fifth part of a year.

The question may now be asked, Are there any practical conclusions and deductions to be drawn from the statistical points which it has been sought to establish and to represent? Now years of human life are capable of being translated into terms of pounds, shillings, and pence, and it is evident that the ravages of phthisis must entail a very serious financial loss to the community. About 10 years ago, after reading a paper upon Life-table Construction before the Royal Statistical Society, I was met by a criticism, good-humouredly, but at the same time pointedly, made, by a member of the actuarial profession present, that it would be better for a medical man to stick to his stethoscope and not to meddle with matters which properly belong to actuaries. My reply was to the effect that, whatever might be the case with medical men as practitioners, it was certainly open to a medical officer of health to utilise such little mathematical knowledge as he might possess in demonstrating the relations between lives and deaths. Should he, as only too probably he may, come short of the mathematical skill of the actuary he may gratefully accept such correction as the latter may be able to give. But when it comes to translating years of life into pecuniary value the writer gladly concedes that this is the special work of the actuary and one for the dealing with which the community owes to him a debt of gratitude. Therefore I can make no attempt to measure the financial loss due to phthisis or the possible gain by abolishing or considerably mitigating the effect of this disease. I would simply desire to represent to those concerned with the management of the industrial and other life assurance societies that it might be not merely an act of benevolence and charity, but one of self-interest and profit, to subscribe something towards the establishment and maintenance of sanatoria for the treatment of phthisis, so as to aid in the restoration to health and the prolongation of life of those who are stricken with this disease and at the same time to be limiting the diffusion of the infective germs to others. This course would not be without precedent for such exists and is already given in Germany. It is only the adoption of a similar principle to that long ago acted upon in their own self-interest by companies insuring against loss by fire—viz., either to maintain fire brigades of their own or to subscribe largely to those established by municipal enterprise.

ON THE PHYSIOLOGICAL CURE OF THE MORPHIA HABIT.

BY W. OSCAR JENNINGS, M.D. PARIS, M.R.C.S. ENG.

IN 1890 I published a little book on the cure of the morphia habit, giving an account of different means of treatment, based upon my researches concerning the craving that had enabled me to wean a considerable number of *habitués* from their addiction, with a minimum of distress and suffering. It may seem an invidious thing to say, but I have no hesitation in declaring that before this there existed no treatment of the morphia craving founded upon therapeutic indications. There was, in fact, no treatment of the craving at all, which is tantamount to saying that there was no systematic treatment of the morphia habit.[1] The so-called "methods" described by contemporary writers consisted of suppressing the morphia suddenly, slowly, or semi-brusquely, and those who could be persuaded to give up their liberty, when they did not die suddenly or commit suicide, were sometimes cured temporarily after indescribable sufferings,[2] but the same ignorance, or rather indifference, concerning the means of alleviating the craving, extended to the means of preventing the discomforts that are liable to occur to those who are left to their own devices after the suppression, and in nine cases out of ten the temporary suppression was followed by a speedy relapse.

I would say at once—for I have long ceased to make any secret of the matter—that my first observations were made in my own case. I endeavoured to analyse and to dissociate the different factors of the miserable wretchedness known as the morphia craving, and I was able to satisfy myself that they were always intensified by a certain number of errors and imprudences that the morphine

[1] I except that of Dr. Mattison of Brooklyn, who treats his patients by bromides, codeine, and cannabis indica.

[2] A physician, quoted by Dr. Mattison, expresses himself as follows: "Let him (the patient) quit it short, absolute, and entirely. If he have the will power, trust him; if he cheats, lock him up; put a Hercules over him as a nurse." As it is absolutely certain that no one whose addiction is of sufficient standing to warrant the expression "morphia *habitué*" could leave it off suddenly by an effort of the will the Herculean nurse would become a necessity. Here is a picture of the treatment by the same authority. "All substitutes are simply a prolongation of the agony he must go through. ..... The patient who quits morphia, after a long-established habit, suffers from insomnia, diarrhœa, nausea, vomiting, achings all over, and debility to such a degree that it is a marvel how he lives. ..... All this suffering will last from five to ten days. No medicine will do any good, the stomach rejects everything, even a mouthful of cold water. ..... At last, after several centuries of torture, little by little, and without medicine or substitutes, nature accomplishes the cure. This terrible treatment, I am sure, is not only the best, but the only safe one to cure, and secure the patient from relapse."

habitué always commits, and that, on the other hand, they could be prevented in a remarkable degree by simple dietetic and hygienic observances, and remedied by a number of means of treatment that result clearly from unmistakeable therapeutic indications. During the last ten years I have had the opportunity of verifying my first observations, and I can now affirm that when the line of conduct which I indicate is followed intelligently, the craving can often be entirely prevented, and in every case attenuated to such an extent that there should be no difficulty about suppression for anyone who is really desirous of giving up the addiction.

It might be supposed that the mere fact of a person consenting to commence treatment would be *primâ facie* evidence of a real desire to be cured, and that when the reduction is prematurely stopped it is good proof of the failure of the treatment. This is, however, a false conclusion, for there are a great many patients who commence treatment under pressure from relatives, or in alarm at certain menacing symptoms, and when, as is nearly always the case, a slight reduction has led to a disappearance of these symptoms, or when the restraint to which they are necessarily subjected begins to become irksome, the first resolutions, or rather good intentions, are thrown to the wind and the patient resumes his liberty of action. He has not given up the treatment because of any suffering, or even discomfort, but because it has turned out that he has not sufficient unity of purpose to carry out what he was momentarily persuaded or frightened into undertaking.

Besides these two classes of patients—those who would get well if the craving could be moderated sufficiently or entirely, and those who do not intend to do so—there is an intermediate class: those who do want to get well, and who have no real craving that prevents, but who suffer from an hysterical neuromimetic craving. As is the case in all painful hysterical manifestations, it cannot be affirmed that there is no suffering, because there ought to be none, and because there is no reason for any. It is in these cases that great tact is necessary, and that experience is more especially requisite. Such patients should never know how much morphia they are taking, or what other agents are being administered, and as the symptoms although really distressing are entirely ideal, ideal treatment must be adopted. In the case of one lady, as soon as she knew that she had been reduced to a small dose of morphia, the most distressing scenes occurred, but after a temporary return to larger doses, a reduction was carried on rapidly without her knowledge, and she had given up the morphia entirely for three weeks, before she had any suspicion that she was near the end.

Supposing, however, that a patient is sincerely desirous of giving up his addiction, he should commence by consenting to renounce all liberty of action whilst under treatment—he should give up his syringe and his solution to a sure friend, a medical man or a tried and reliable attendant. It may seem superfluous to take such precautions with a treatment that claims to do away with all real sufferings, but with the morphia *habitué* it is better to guard against temptation or impulse and the best evidence of a will to get cured is the temporary renunciation of all freedom of action. It requires a considerable exercise of will to renounce one's free will, and the re-education of the will is one of the best guarantees for the future.

When the morphia is associated with some other addiction the first thing is to suppress the other stimulant, whatever it may be. If it is alcohol or cocaine there is no difficulty worth speaking of in so doing—indeed, the quantity of morphia taken becomes more satisfying, being antidoted as it were in a certain degree by the other stimulants, when they are taken. A medical man in London who consulted me by letter was astonished when I told him that he could give up the cocaine without trouble, having been accustomed to look upon this as the most difficult part of his addiction. He wrote shortly afterwards to say that he had not experienced the slightest difficulty in carrying out my instructions. A gentleman who afterwards came under my care had commenced treatment with a London practitioner at the time when he was taking eight grains of morphia and an immense quantity of whisky, besides brandy, four grammes of albumin representing the result of the kidney irritation. The practitioner offered to allow him extra whisky if he would give up the morphia, a plan which would probably have resulted in delirium tremens. Fortunately he recognised his danger and shortly afterwards he came to Paris. All alcoholic stimulants were stopped in ten days, and six weeks later there was not a trace of albumin.

As regards the rate of reduction, I have always been a partisan of gradual progression, but the actual time necessary for the cure of any given case, depends entirely upon the thoroughness with which the craving can be prevented by the means adopted. Starting from the fact that it is possible without any other treatment whatever, to wean a person from the morphia habit without his knowledge by a sufficiently slow progressive reduction, it is evident that the slower the reduction, the less distressing is likely to be the craving. The plan which I have adopted is to proceed as fast as possible, but *as slowly as necessary to effect a cure without distress.* If there were no other means of relieving the craving, the treatment would then resolve itself into a suppression sufficiently gradual for each patient, but this is no longer the case, and when the patient is perfectly docile, allowing his mode of life to be so arranged that all increasing causes of the craving are eliminated, the residual craving is reduced to its simplest expression and can be so alleviated by the means which I use that suppression may sometimes be obtained in ten days or a fortnight.

It is desirable first to bring about a change as soon as possible in the mode of administration of the morphia. If this can be effected earlier in the treatment, so much the better, but if not there should be a gradual substitution of rectal for hypodermic injections from the moment the patient is reduced to two grains by the skin. Two grains would seem to be the vital requirement. Above two grains morphine can be found in the urine; below this amount it seems to be entirely consumed. It is not, as a rule, possible to get below this figure without discomfort, and here a subterfuge should be adopted. From this point downwards twice as much should be given by the rectum as is suppressed by the skin. In consequence of this the patient who has commenced these substitutive rectal injections at two grains hypodermically, will be taking four grains by the rectum when the hypodermic injections are suppressed. But this is in no sense whatever a relapse. The great point to be accomplished is renunciation of the syringe—to wean the patient from his accustomed *stimulant*.

Hypodermic injections of morphia give energy and "go," and it is for this reason that the syringe is resorted to on the slightest pretext. It is the exact equivalent of brandy-nipping. For the person who has been accustomed to hypodermic injections the effect of rectal injections is quite different. There is no sudden or sensible stimulation and recovery of energy, but in its place an even sedation. This sedative effect, inasmuch as the dose is larger, compensates largely for the want of a syringe, but as it is not in the same way stimulating, it does not give rise afterwards to the same degree of craving. It is, moreover, an inconvenient thing to inject morphia by the rectum; the patient will do so to prevent suffering from the effects of hypodermic suppression, but it is without the fascination which leads to the constant use of the syringe; he is satisfied to content himself with what is really required to prevent discomfort, and has ceased to be the subject of morphia intemperance. It is now that the different means of preventing and remedying the craving that would otherwise result from continued decrease of rectal injection must be resorted to.[3]

The want of morphia shows itself by certain symptoms which, as has been said, are natural indications of the treatment required. It should be borne in mind that when giving up morphia it is a question of giving up not an habitual sedative, but principally a stimulant, and a stimulant of such transcendent power that the vital collapse which results from its suppression far exceeds anything that

[3] I taper off the morphia as fast as is possible, but, as I say elsewhere, as slowly as is necessary for each case. During the period of rectal substitution there should be no craving whatever, but when the hypodermic injections are finished with and the rectal injections have to be diminished the craving, if untreated, will be proportional to the rapidity of suppression. One patient, thanks to the means of preventing and relieving the craving may get through this stage in a few days, others will require the same number of weeks; and when the last fraction of a grain of morphia is reached I sometimes render the transition more easy still by allowing for a few days decreasing doses of Duquesnel's solution of meco-narceine, a preparation of opium in which the meco-narceine alkaloids remain after elimination of morphia, codeine, and all the others. This makes the last jump free from the discomfort that there might otherwise have been, for there is very little addiction and no craving, that cannot be relieved. After a few days to enable all desire for morphia to disappear it is easily stopped. I have, like many French specialists, also tried at this time an alkaloid obtained from aconite known as "napelline." Once or twice it seemed to be useful, but fuller experience has not confirmed what I first hoped from it. It is, however, harmless and very slightly toxic, but it costs 10 francs a gramme and is very difficult to obtain.

could result from the privation of any other stimulant.[4] By gradual reduction and change from the more stimulating hypodermic, to the sedative rectal injections, the collapse that would have resulted from sudden hypodermic suppression is avoided, but if there were nothing to be done beyond progressive reduction of the morphia (as is the case outside of my treatment), the final suppression would, unless spread over a long time, still give rise to a great deal of discomfort. Observation shows that the suppression of morphia, which amounts practically to the suppression of a fictitious vital force, gives rise to general functional depression, and in the glandular organs to metabolic perversions, and these disturbances constitute our therapeutic indications.

The heart always suffers and the sphygmographic tracing shows a sluggishness that is only too eloquent as regards discomfort. This constitutes my first indication of treatment and heart tonics form, then, my first means of preventing the craving.

As is the case with each of the means of treatment that I have proposed, the utility of heart tonics has been endorsed by every subsequent French observer. I shall content myself with one quotation only. Dr. Pichon expresses himself as follows:—

> The pulse of the morphia *habitué* does not afford to the finger any important indication. ..... But there is a registering apparatus, the sphygmograph, which compensates for this insufficiency as regards delicacy of touch and which analyses the slightest arterial anomalies. It is in this manner that the experiments to which we refer and which we had the good fortune of witnessing were made. ..... These researches were made by Dr. W. O. Jennings, attached to the laboratory of Professor Ball, upon the numerous morphia *habitués* who were attending the clinic at the time. ..... Before arriving at a definite result Dr. Jennings took a series of tracings from patients in different stages of morphinism—state of want, state of satisfaction, intermediary condition, and normal condition.

Dr. Pichon then gives the conclusion of the communication presented by Professor Ball and myself at the Academy of Medicine, and he adds: "Nous avons contrôlé à plusieurs reprises ces savantes recherches. Nous avons pris un très grand nombre de tracés et nous sommes arrivés au même résultat." He then points out that the sphygmographic examination of the pulse is, as I have always taught, the best way of telling whether the patient is honest or not in carrying out the prescribed reduction. If the *plateau* is not obtained when the patient ought to be in a state of want there need be no hesitation in concluding that he takes morphia secretly. Dr. Pichon continues:—

> This discovery has been the pivot of the physiological method which appears to have been given (as we shall see at the end of the chapter) very good results. After numerous trials Dr. Jennings found that the sphygmographic tracings, after use of sparteine and trinitrine, gave the same results as morphine. The problem was solved physiologically and clinically. It [the treatment] often gave before us excellent results. ..... Most interesting practical consequences result from these physiological discoveries both as regards diagnosis and treatment.

Further on, after passing in review the different treatments that have been advocated, Dr. Pichon concludes:—

> We should prefer the physiological treatment of Jennings based upon the action of sparteine and trinitrine. ..... We have seen that these two therapeutic agents replace absolutely the circulatory action of the morphinic euphoria, and overcome the state of want by causing the disappearance of the plateau.

Although the administration of heart tonics has been described under my name in some of the monographs as the "physiological method" of treating the habit I have never claimed more from heart tonics than the power of relieving the craving in so far as it is caused by heart sluggishness. This is something—I may even say a good deal—but it is not all, and there are other factors of the craving that are equally important. Before passing to them I would say that in my first memoir I used sparteine because it was easy to demonstrate to the students (when I was attached to the clinique of Sainte Anne) the recovery of the heart, but in my more recent publications I expressed the opinion that it was better to avoid hypodermic injections of any kind in convalescing *habitués*, and that a more even strengthening could be obtained by digitalis given in the usual way. I have recently had occasion to go back to my first opinion. In a case where the digitalis appeared to have lost its efficacy, sparteine did all that was necessary, being even more comforting than I should have expected from a simple cardiac tonic.

The next great factor of the craving is hyperacidity of the stomach and organism generally, and this naturally suggests as a treatment the administration of bicarbonate of soda. For 13 years I have been calling attention to this fact in English publications, and although still apparently unknown in England its importance is now recognised by every writer on the continent, Professor Joffroy of the Paris School of Medicine being the last one to endorse it and to recognise my claims to its authorship. It may seem strange to make a therapeutic agent like bicarbonate of soda play an important part in the treatment of the morphia habit, but some go even farther than this, and make it little less than a panacea. Erlenmeyer has even given this means of treatment the name of "chemical demorphinisation" and he labours under the impression that he was the first in 1895 to suggest its use. As I pointed out in four different publications before that date that hyperacidity is an important factor of the craving and insisted in each instance upon the value of bicarbonate, the only thing that can be claimed truly by Erlenmeyer is to have given a high-sounding name to a discovery of mine and to have correspondingly exaggerated its importance.[5]

It is quite evident that hospital or asylum patients can be forced to give up their morphia whether treated by bicarbonate or not, but bicarbonate will not help to the extent of suppressing the craving by itself, which is the only case in which it would deserve the name of an adequate method. Bicarbonate relieves the craving in so far as it is caused by over-acidity in the same way that heart tonics relieve it *quâ* cardiac sluggishness and nothing more; but it is none the less satisfactory to find that according to others I have understated rather than exaggerated its value.

Various other means of relief may be applied according to symptomatic indications, but the last of my therapeutic triad is the hot-air bath.[6] And here, again, I have certainly not overstated my case, for the author of a Montpellier thesis makes alternate douching with hot and cold water a method by itself, and there is now an institution for the cure of the habit by hot-air baths alone. It is highly probable that other means are used concurrently, for however valuable the

[4] Some years ago I treated a patient at Sainte Anne—a girl who walked from Brussels to Paris through the snow because she had not the money to pay for the train. During her journey she lived upon what bread she could purchase for two or three sous a day, being entirely kept up by frequent injections of morphia.

[5] In my contribution to the *Encéphale* in 1887 I say: "The only medicines that have always seemed to me useful are bicarbonate of soda and preparations of valerian;" and in a note I asked whether this is due to a neutralising action on the acid products of imperfect combustion, &c. In three or four other places I allude to the possible rôle of acidity in the morphia habit and to the value of bicarbonate of soda also in the after-treatment. In 1890 ("Cure of the Morphia Habit," p. 80) I say: "One of my invariable recommendations when there is any stomach difficulty is the administration of bicarbonate of soda in the form of Vichy water. Its effect in the relief of the craving is often immediate, not being limited to the neutralisation of over-acidity of the stomach. Alkaline solutions increase the efficiency of the heart's action and cause contraction of the capillaries, a result which lessens abdominal stasis and helps to facilitate the general circulation." In the Medical Annual, 1894: "Dr. Haig has pointed out (as I hinted seven years ago) that the condition of the organism as regards acidity is one of the factors of the craving. This accounts for the immediately soothing effect of bicarbonate of soda. ..... During this period the discomforts which are caused by the overcharging of the system with uric acid ..... everything should be done to prevent the formation of acid and to promote its excretion. ..... Bicarbonate of soda should be given according to indication, &c." These quotations show pretty conclusively that Erlenmeyer, who announced his discovery in 1896, has copied from me, perhaps unconsciously, although curiously enough he contributed a paper to the *Encéphale* the same year as myself. The treatment therein described—his so-called rapid method—is the one recommended by the few writers, Clifford Allbutt among others, who were not acquainted with mine. Since then Erlenmeyer himself has solemnly renounced this method (*Progrès Médical*, 1896) for his so-called "chemical demorphinisation," which is in reality part of my treatment.

[6] Until within the last year, I wrote in 1890, I generally used to prescribe some kind of hypnotic at the last critical moment, chloral, methylal, hydrate of amylene, sulphonal, &c., but now I rely mainly on the hot-air bath, repeated, if necessary, and followed by the cold douche. For some time after the termination of the treatment I continue these baths, which are also the best means of preventing and combating any revivescence of the craving, and it was through their action as a preventive of relapse that I was led to use the hot-air bath as a means of treatment. ..... The moderate restlessness which occurs when patients are properly treated, disappears entirely in the hot room of the Turkish bath; and the subsequent massage and cold douche form the most perfect sedative that a morphia patient can be allowed. There is no better means, moreover, of dealing with the revival of the craving that occurs from time to time, especially under the influence of indigestion. (On the Cure of the Morphia Habit. Baillière, Tindall, and Cox, London, 1890.) In several of the cases reported, moreover, its use is especially noted; it is mentioned in one case that for the last week the patient took Turkish baths regularly. As a matter of fact, I used the Turkish baths long before 1890, for in a reprint of my paper in the *Encéphale* in 1887 I stated that it was an "excellent means of calming the agitation caused by attempts at suppression, giving rise to sensations that resemble morphia and being followed by lassitude most agreeable to the agitated"; and speaking of the after-treatment of the case on which the paper is founded, I said: "Whenever the necessity of a tonic or a calmant is felt he has recourse to the Turkish bath, and it would be difficult to find a more efficacious means." In the *Medical Annual* (1894) I was even more emphatic as to its value and as to its importance as a regular part of my method.

hot-air bath may be, the cure will never be too easy, and there can be no reason for rejecting any one of the means that have been proved to be useful. In a recent case, wishing to test the value of the baths alone, a very unmanageable patient was submitted to this treatment, but he contrived to cheat and it did not prove nearly as satisfactory as my *confrère*, the exponent of this treatment and who was directing it, had promised. Being afterwards placed under conditions which prevented all deception, the system of rectal injections, with bicarbonate of soda was substituted, and he was cured without knowing when he had passed the Rubicon. In alluding to this case I am not desirous of detracting from the value of the hot-air bath, inasmuch as here, again, whatever may be the value of the idea, it is my own and forms an integral part of my method of treatment. It is better, however, not to expect from it more than it can do, and in most cases, however great the relief obtainable from the bath, it stands to reason that it cannot be as helpful alone, as the association of the different means of treatment. The effect of the bath, I feel sure, is largely due to its tonic and sedative action, but it may also act as an eliminator of some excitant of craving. This may possibly be the oxi-di-morphine which is formed in the body and is considered by Marmé as its chief cause, experiments having shown that oxi-di-morphine when injected into the system in a virgin subject produces the symptoms of craving. It may be also, as I have always maintained, that it is a moderator of acidity, and this would explain its value in the after-treatment, when the ex-*habitué*, unless extremely abstemious, is saturated with acidity and when it would be difficult to explain the spurious cravings by oxi-di-morphine.

Such, then, are the main factors of my treatment. But considering that acidity of the system in general, as well as hyperacidity of the stomach, plays a part in the causation of the craving, I always insist on a moderate and, as a general rule, on a non-alcoholic *régime*. In cases where there is at the same time neurasthenia there may be spells of restlessness and a tendency to movement, but at the same time a disinclination to exertion. Here a hammock or a rocking chair affords the means of combining both movement and repose. The patient must try to woo back sleep, and for this purpose there must be no reading in bed during the progressive reduction, a practice by which the effects of the previous night's dose are wasted in keeping him awake and sustaining intellectual activity. For insomnia cerebral galvanisation is sometimes magical, but if unsuccessful the best hypnotic is trional. Fluid extract of coca and sometimes kola are used frequently and the only other drug that is taken constantly by my patients is valerianate of ammonia (as prepared by Pierlot), which was taken for the same reason many years ago by Coleridge.

I would give a warning against the synthetic derivatives of morphia recently devised—dionine and particularly heroin which is largely vaunted now as the treatment of the morphia habit *par excellence*. The craving following its use is infinitely more unmanageable than is that of morphine and in two cases treated by me recently the doses were rapidly increased and the patient became violent when it was attempted to suppress it. It is only second to cocaine as a drug to be avoided.

It has been said, and repeated, that ex-morphine *habitués* are subject to periodical revivals or tides of craving and that these discomforts are more likely to occur in those who have undergone a slow reduction. Both statements are errors of interpretation. In the ex-*habitué* there is always a most extraordinary return of vitality after suppression, a kind of vital exuberance which is so certain that however grave may be the condition of a patient during his addiction, restored health may be promised if the habit is renounced.

One of the best proofs indeed of the advisability of the progressive plan is the fact that when properly carried out patients generally put on flesh during the treatment, and as soon as the morphia is entirely set aside the increase of weight is hourly visible. I have several times known patients to gain two pounds and even a little more per day. This physical recuperation has been taken as an indication to gorge such patients with food, but although the power of assimilation is good, the nervous equilibrium is unstable and when the patient is overfed it leads to metabolic perversions of different kinds. The ex-*habitué* has acquired more or less completely the congestive habit of body which goes with vital exuberance and nervous instability, and one of the consequences of this is a tendency both to hyperchlorhydria and excess of uric acid, both of which are factors of craving. Besides this the ex-*habitué* is generally polydipsic and boulimic and, being encouraged in the matter, he does not restrain his appetite, drinks as a rule freely of fermented drinks and eats in proportion. As he is easily tired and has a disinclination to active exercise, he is nearly always saturated with uric acid and on the imminent verge of bilious or gastric failure. This is the real cause of what are called the "after-cravings"; for it is easy to understand that when saturated with acidity generally, and perhaps suffering also from acute or chronic acidity of the stomach, the symptoms experienced will be those associated in the past with these conditions—that is to say, a feeling of morphia craving. We must also remember that every morbid sensation during the past addiction having been uniformly treated by the injection of morphia, every malaise in the future will suggest by association the idea of craving for morphia. The best proof that these are not real cravings is in the result of treatment, for if properly treated the craving will disappear and when the ex-*habitué* is careful to lead an abstemious life he is not liable to any such revivals. Besides these remedial measures, the ex-*habitué* should do everything he can to promote a healthy tone of the system, taking as much exercise as possible without undue fatigue, to which end he will find cycling—for preference the tricycle—invaluable. Another prophylactic precaution is the regular use of Turkish baths, and with these means the bogey of returning tidal cravings may be set at defiance.

The following cases represent aptly the different points insisted on in the preceding paper. The first is an example of a "demorphinisation" in which all the different means of treatment recommended were employed methodically, according to therapeutic indications. The patient was not only cured without suffering, but, thanks to the observance of a suitable *régime*, was entirely free from any kind of suffering afterwards.

CASE 1.—A man, aged 46 years, commenced the use of morphia 20 years ago for gastralgia, and had continued it on account of the relief which it gave to business anxieties and the increase which he experienced of business capacity. Besides which, his wife having left him when he was just beginning its use, he had drifted into two irregular *liaisons*, and he at first found the morphia invaluable for keeping him up to the mark. From twelve grains, which he was taking when he commenced treatment, we proceeded by half-grain reductions to eight grains, thence by one-third of a grain to four grains, and from four grains onwards by one-quarter grain reductions till the end of the cure. Towards four grains there was a tenderness to acid dyspepsia, which was, however, kept in check by bicarbonate. But henceforth he consented to be abstemious in food and moderate in wine, and his digestion was much improved. From four grains downwards he took a hot-air bath night and morning. As we neared two grains he was less complimentary than usual concerning the result of the treatment, but on wishing to put him on a somewhat slower reduction I heard no more complaints of discomfort. At two grains rectal substitution was commenced and the syringe was given up with the greatest satisfaction. The four grains of rectal morphia were reduced by thirds to three grains, by fourths to two grains, and by fifths till the end, and from two grains onwards the hot-air baths, which had been temporarily suspended in the course of the rectal substitution, were resumed. No medicine besides sparteine, bicarbonate, valerianate, and coca were used at any time. On the day following the last centigramme of morphia, the patient took three cubic centimetres of Duquesnel's meconarceine solution, two on the following day and one cubic centimetre on the succeeding night. He left Paris on the day after and in several letters, one as late as seven months afterwards, he assured me that he had never had any discomfort that could be said to amount to craving. Infractions of temperance were surely followed by pseudo-craving, but knowing its cause he very seldom risked them and was always able to remedy them by the means which I have so much insisted upon. The only drug he had taken on leaving me was trional which he had given up a month afterwards. He fully endorsed my statements as to the value of the Turkish baths and of the use of cycling, but when he had fully recovered his strength he preferred golf. In his last letter he made the remark with which I will close—that with such means of preventing and remedying the discomfort that might otherwise occur any morphia *habitué* who relapses does so because it is his pleasure.

The next patient shall give his own account of his experience.

CASE 2.—The patient was a medical man who had given up the practice of the profession for another career, in which he occupied a most distinguished position. I first heard from him in a letter from Tasmania. He says:—

Nearly a year ago I read a reprint of your paper on the morphia habit. As a morphia victim of some years' standing, though only 43 years of age and still in excellent health, it opens up a new hope to me. I am convinced that under your treatment I can escape from this frightful bondage. Alone or under the ordinary treatment I know I cannot. I implore you as a matter of common humanity, as a brother physician, to reply to my letter at once. ..... It is life or death to me, my future depends on your reply. For God's sake do not neglect this.

His next letter was from London eight months later and he wrote reminding me of his previous communication. He began by giving some information about himself and he confessed that he had at first written under an assumed name. He had taken morphia for 11 years. In my answer I told him that I was quite willing to undertake his case if he would conform absolutely to my conditions, and I advised him either to go to St. John de Dieu or to place himself as a boarder in a nursing institute which I recommended where he could obtain a comfortable room and could have as his attendant the son of the directress, who had acted in that capacity before for several of my patients and whom I had found to be unusually intelligent and competent. I warned him, however, that his attendant would be in a certain way his keeper and that although he would be free to go about as he liked he would have to submit to constant surveillance. In his reply he expressed himself as follows:—

I am glad you can accede to the idea of constant personal attendance; but he must be a man I cannot bribe, as I know I cannot hold myself responsible under certain conditions. You need not fear any resentment on my part at any measures you may think essential for treatment. And I can tell you plainly beforehand that when suffering for medicine as I have done a few times in my life when the accidents that one is subjected to in a wild country have cut off my supplies suddenly I think I would commit any crime to obtain relief; and, indeed, I have ridden alone, night and day, through 200 miles of the most dangerous Indian country in the world, to renew my supply. ..... My main fear is that while I may succeed in getting rid of the habit there will be such a constant craving afterwards that in some moment of despair I shall fall back again.

The patient came over to Paris and, as suggested, took a room at the nursing institute with the attendant I had advised. During his treatment he used to get up late in the morning, take a lesson in French, then lunch, after which another lesson on the 'cello. Then he would go to different places of amusement and interest. After dinner he played whist at my house, seldom leaving before midnight. When the morphia was entirely left off, he continued as an act of precaution to reside where he had been living and to retain the services of his attendant. He did not leave Paris until he felt perfectly sure that there was no fear of the after-cravings of which he had expressed so great a dread. Before leaving he sent me the following account of his experience:—

It being now nearly two months since my cure was completed, I will endeavour to give you a brief *résumé* of my feelings, condition, &c. I have experienced not the slightest desire for morphine since I gave it up, and to my astonishment if it ever enters my mind at all it is as something that in my present condition would only congest and benumb me. So that I do not feel that it would be pleasant even if it were not harmful to take. I shall preserve this illusion as long as possible. My strength is slowly coming back, though much impaired at present by a severe influenza. I expected to suffer much from want of sleep, and the first few nights after my cure did not get an hour's sleep. But as soon as I obtained the galvanic battery that you recommended me and passed a constant current of three milliampères through the brain, for a few minutes on going to bed, I at once became intensely sleepy and the same thing happens nightly ever since. I had no belief in its efficacy in my own case, but it has certainly succeeded, and I have not taken a grain of chloral, bromide, or other hypnotic since. I used to have periodical headaches; since my cure I have had none. The bowels that formerly could only be moved by artificial means are quite regular again. I have lost nearly all the fat that was rather marked in the abdominal region. While reducing the morphia I suffered from constipation, as I have during all the years I have taken it. With slight exceptions I obtained no relief until I had given it up, since when I have a natural (never loose) movement about every second day. The whole world has taken on a different and brighter aspect to me, and I can only finish by saying that I am firmly convinced that you are the only person that could have assisted me to be cured and, above all, *to have no desire for morphia left* in a reasonable time, and without experiencing any actual suffering or unbearable discomfort.

What follows is from fuller notes sent to me six months later:—

I began with an ordinary dose of 12 grains a day. For the first two weeks there was absolutely no discomfort. This was whilst reducing to four grains by the skin. A certain *ennui* only due to the substitution of regular habits for the more careless life I led. Sleep and appetite, the latter rather poor for years, remained as usual. Then came two or three days' discomfort, the craving coming on before the morphia was due and causing that restlessness that I believe to be indescribable by a person that has not experienced it.[†] *But, after all, it was only discomfort and could be thrown aside and forgotten temporarily if I could only get absorbed in some interesting occupation*, such as a game of cards or billiards. This was between four grains and three. After this little hitch the reduction proceeded without any serious discomfort, though always a certain *ennui*, until I reached the point where you give up the hypodermic syringe and substitute a double dose of morphine by the rectum. This was a very agreeable stage of the treatment for me. The long-continued comfort afforded by the increased dose of morphia much more than compensated for the less active effect given. Fairly good nights were obtained by reserving nearly half of the 24 hours' allowance for the evening dose, but a little discomfort during the daytime. As the day's dose diminished down to a few centigrammes, the discomfort became more marked, *but always endurable, as shown by the fact that my condition was never such as to prevent me taking a daily lesson in French and on the violoncello, going to your house, and playing whist afterwards.* Indeed, I attributed much of the ease with which I got through the ordeal to following your advice in regards to keeping myself interested and busied as far as possible even when I had little inclination for it.

The end of the cure was not particularly hard except that for some nights I was troubled with a sleeplessness that was rapidly demoralising me when you fortunately recommended a constant current from a weak battery. I tried it without the slightest hope or belief that it would help me; but the result was instantaneous and constant. It put me to sleep in from 10 to 20 minutes, and during the first few days of lassitude and weakness gave me from five to six hours of good sleep nightly. Later I slept naturally six hours, and since my return home, four and a half months after treatment, I sleep naturally seven or eight hours and never read over 10 minutes on going to bed. In the past three months the only drug I have taken has been two doses of bromide of potash. I had no looseness of bowels during my treatment and since its completion have taken neither medicine nor injection, they being perfectly normal. I have gained 20 pounds in flesh, though not about the abdomen; have my normal appetite of former times, and excepting a decided sensitiveness of the respiratory tracts suppose I am as well and strong as I could ever expected to be at middle age. I do not find that indiscretion in eating or drinking produces any craving for sedatives, however uncomfortable I may feel. This condition of things I owe to you and am happy to acknowledge it. With a somewhat long experience of morphia and its *habitués*, I must express as my firm belief that the only possible way that I have ever heard of by which I could succeed in escaping from the use of the drug as well as from all craving for it was by following the principles you so forcibly and frequently laid down for me—i.e., gradual but voluntary suppression, constant surveillance without restraint, and absolute truthfulness with you as to my position; nor could I have carried these out without your constant encouragement and your insistence that success was plainly and certainly within my reach if I would only keep up the necessary patience and strength of mind to fight off the tedium and feeling of weakness.

I will add only one detail that my patient omits, which is that his virility, which was suspended as is usual in morphine ***habitués***, returned in a remarkable degree after suppression.

Those who have experience of the morphia habit will understand how slight the discomfort which was felt by this patient must have been in comparison with what it otherwise would have been. It did not prevent him taking a lesson each day, in French and on the 'cello, and he was able to play whist all the evening. I find, moreover, on reference to his note-book, that the discomfort that did occur coincided with an attempt on his part to hasten the reduction. I do not recollect now (for it is not stated either in my notes or in the patient's report) for what reason he was unable to take the Turkish bath. Satisfactory as was the result it would have been even better had he been able to do so.

The third case is interesting from the fact that the patient was addicted, not to morphia, but to opium, and that the addiction had lasted nearly 20 years. It shows the ease with which a hopeless addiction may be given up if properly treated.

CASE 3.—The patient, a married medical man, commenced the use of opium at Cambridge between 19 and 20 years ago, taking it as a mental stimulant whilst working for the mathematical tripos. For some time the dose did not exceed a few drops; but it gradually increased until from two to three ounces daily were consumed. At different times attempts were made to effect a cure, on one occasion the progressive reduction lasting from May to December and ending in a failure. To quote the patient's own words: "The agony which I suffered during the attempt is only to be understood by those who have gone through it." Since then, although there was a speedy relapse, the doses have been kept within limits, the daily quantum varying between two and four drachms. In the month of April the final treatment may be said to have commenced, the patient substituting for the laudanum the use of crude opium which was taken to the amount of 12 grains a day, this having been decreased to eight and finally to four grains daily. It was found, however, that no further progress could be made, and when there were

[†] I find from my own notes that the reason of this was that the patient had neglected to pay attention to the bowels, which had been obstinately confined for five days.

east winds or cold weather it was necessary even to increase this daily dose. From the time he commenced treatment with me progress was uniformly satisfactory. To say that he was entirely free from discomfort would be an exaggeration, but for the whole duration of the treatment he never failed to eat two hearty meals a day and, thanks to the effect of cerebral galvanism, to sleep well. The bowels were constipated or irregular and occasionally the seat of restless pain, besides which there were headaches, exhaustion, and depression of spirits, symptoms which may be attributed to difficulty of digestion.[8] From the beginning of the treatment in Paris digitalis was given, and great benefit was derived from the use of nitro-glycerine in the form of Burroughs and Wellcome's compound tabloids, which contain also nitrite of amyl and capsicum. The daily ration was being taken in one dose only, the first thing in the morning, and the patient who was waiting for his dose at from 6 to 8 A.M. was frequently able to fall asleep after the nitro-glycerine and so to economise several hours, only taking the opium at 11 or 12 o'clock. Within a month from the commencement of the treatment the patient attended a meeting of the Société Médicale de l'Elysée, where I read a short note of his case, and the treatment seemed to have come to a successful termination. I have not given the daily progression for the reason that there were no incidents of interest to record. From the first day to the last the progression was followed as laid down, and the last dose of opium was taken on the day anticipated. The following day, however, possibly in consequence of a chill taken on going to the meeting of the society in an open carriage, diarrhœa and tenesmus supervened, with chills, prostration and cramps, but, what is worthy of note, no craving for opium. These symptoms lasted for more than a week, the patient remaining in bed three days. He remained with irritability of the bowels until I gave him some bromide of sodium which had the happiest effect in that respect. After he returned home he wrote to me that the appetite and diarrhœa were unsatisfactory, but they are now all that could be expected.

In the preceding cases little difficulty was met with, and there was in consequence but little discomfort, but in those which follow there were sometimes the greatest difficulties to cope with and it is interesting to see how they were overcome. The first of the three cases selected is a patient whom I never saw, as he was holding at the time the appointment as resident medical officer to a hospital and was unable to give up, even temporarily, his duties. Nothing could have looked less promising, but by constant encouragement he was brought through satisfactorily.

CASE 4.—In his first letter the patient told me that he was addicted both to morphine and cocaine as well as chloral, and he asked me to advise him. I replied that I could give him no aid whatever as long as he took cocaine, which when taken with morphine could be given up without any suffering at once. I gave him to understand that there might be considerable difficulty about resisting the impulsion to take cocaine, but that if that were the case he should at once give up his liberty of action in this matter and place himself under restraint. There was a mental impulsion only, not a physical craving. When he had given up cocaine he was to write again. Nothing could express so accurately the psychology of this case as the patient's own letters, which I copy. The first two refer to the suppression of the cocaine:—

I can't tell you how grateful I am for your letter received this morning. It is indeed good of you to take such trouble. I have been almost on the point of suicide these last few days thinking that there was *no* way out of my bondage. I hope to drop the cocaine at once or at least in a week. I have given your letter to our medical man and asked him to act on it; how I wish I could be under your care, I have such absolute faith in you. As you say *re* cocaine it does make one worse. I have never taken it by the skin. When I drop the cocaine what shall I do *re* chloral and morphine? I now only take the morphine by mouth. Will you let me know? Please don't forsake me yet, my only hope is in you, only unfortunately I can't well come over. I shall leave the cocaine in the doctor's hands and take my usual dose of morphine and 25 grains of chloral till I hear from you. I hope to write soon that I have dropped the cocaine. I can only offer you my most heartfelt thanks. God knows I want to become once more what I was and I feel it is only you that can do it, so please don't drop me. I have such implicit faith in you, your book gives me faith because one can see you know the ego of the morphine *habitué*.

P.S.—Does smoking do any harm?

Thanks to you and my faith in you I have taken my last dose of cocaine and my father has thrown in the fire all the cocaine I had. I believed your words that it was a "mental impulse," although I would not have believed anyone else, and have found, I must say, little trouble in giving it up. I can't understand it, as all the books I have read speak of it as the cocaine fiend and give one the idea that it is almost impossible to break it off. Will you, sir, tell me what next to do? I am now taking 30 grains of chloral and bromide every night and almost 10 or 12 grains of morphine in two doses during the day. Can I break off the chloral first, as I am anxious to do it as my people know about it, and then tackle the morphine; but I must leave myself in your hands, only, if possible, I should like to break off the chloral first. I have done it before by bringing it down to five grains per night, but then it was the cocaine that started that again. I hope you will stick to me now. I have so much faith in you, and you alone. Already I am beginning to feel once more a man. I can only thank you and from my heart ever think of you as my saviour.

I gave him the necessary instructions in reply and his next letter was as follows:—

I have not written before because I have not been able to follow your programme as I should wish. I have given up all but the morphine, but I can't reduce that under four grains a day, two in the morning and two at night. Can you help me in any way as I am most anxious to do away with it once and for all. May I ask two or three questions? First, how many pipes of tobacco can I smoke during the day? I have given up cigars. Had I better only smoke in the evening? Secondly, I find the bic. soda does relieve the sinking feeling at the epigastrium, but only for a time. I am rather anæmic, may I take iron, and, if so, in what form? Thirdly, I take three or four tabloids of tetronal at night, had I better take them with the night doses of morphine? Will a weak whisky and soda at night do any harm? Fourthly, had I better get tabloids of morphine as the local chemist is not, I am afraid, very exact, sometimes he gives too much and sometimes too little? I wish I could reduce from the four grains. Please excuse me bothering you so much, but you are the only one I have any confidence in, and even now I am another man thanks all to you. Is there really a physical cause for my not being able to reduce the morphine as I did the cocaine? That (the cocaine) was so easy. I find a craving for the morphine which I did not in giving up the cocaine. I find my appetite excellent, but can't go long without food—in fact, sometimes after a good meal I want something in about two hours; had I better take some light nourishment with milk? I do hope you won't give me up just yet, but I feel very sensitive about troubling you so much. I will try my best to carry out your instructions, it is such a help to receive a letter from you.

P.S.—Does a large dose of morphine produce similar feelings to a want of morphine? I have an idea it says so in your book. May I not read, say for 20 minutes, in bed? The reason I ask is it makes me a little sleepy. I quite understand that longer reading would produce a want of morphia sooner. Have you written any other books on this subject? Although a morphine *habitué*, believe me I tell you the whole truth.

It was two months and a half before I heard from him again, after sending the necessary instructions, which consisted chiefly of a warning against over-eating, and the following was his last letter:—

I would have written sooner only I thought it as well to wait a little before I report progress. By next Friday I shall have been five weeks since the last dose of morphine. I have not forgotten my promise to write to you. Would you like me to write my experience from the commencement of the practice, or only a few notes on the treatment? I shall be only too glad to do anything you require as I have to thank you for getting me out of it, so if you would like the whole of my experience please let me know. I am afraid I can't supply details of the treatment as I should wish as I became too bad to keep notes; however, I have notes of the last week.

I have taken as you advised sod. bic. p.r.n. and digitalis, but val. am. only a few times as I can't say I experienced any help from it. I am speaking now of my experience during the last four weeks since breaking off the habit. I do not take stimulants; my chief difficulty has been, as you warned me, not to exceed at meals. I find if I do that I get an almost intolerable uneasiness; however, that is getting better and I only have it sometimes, chiefly in the early morning. I sleep well, six to eight hours. I can now take actual walking exercise, although at first I thought I should never be able to do so.

My chief object in writing you now is to ask what you would like as regards my experience. Please don't think it will be any trouble as I am most anxious to show you my gratitude even in a small way as I can't in any other.

I still have very loose motions, not exactly diarrhœa, but still troublesome. I clear out the rectum daily with hot enemata. Do you advise me to go on with this? I also have a great many gumboils; is that anything to do with the past habit, also occasionally a chilly feeling particularly in the back, often accompanied with attacks of sneezing. I don't feel quite ready for work as I wish to avoid all chances of a relapse and I would rather wait a little longer until I get quite normal. Is it a fact that for 12 or 18 months one is liable to certain tides of recurrent craving (Allbutt's Medicine, vol. ii.)?

Apologising for troubling you with this rather long letter and again thanking you most sincerely for all your kindness which I shall never forget.

This case shows most plainly the rôle of plethora and hyperacidity. It checked his progress when he was at four grains, and I gave him to understand then that he could only succeed finally by adding abstemiousness to the other means indicated. After his last letter I again told him that his too excellent appetite was the cause of the tiredness and other discomforts and of "the certain kind of craving" to which he referred.

The difficulties in the next case consisted of the extreme duration of the addiction, the invincible insomnia, and the shattered state of the health which was as unsatisfactory as possible.

CASE 5.—The patient, who was a high official in one of the Central American Republics, began the use of opium 23 years before for supra-orbital neuralgia, it having been given him by

[8] This case was treated 10 years ago, before my means of treatment were as complete as they are to-day.

a New York specialist who guaranteed that he would cure him for $100. The bargain having been accepted he gave him a tablespoonful of the mixture which took away the pains as if by magic. "J'ai cru," said the patient, "que c'était un spécialiste admirable." He found, however, that he was obliged to increase his dose, and drifted into the habit until three years later, when he was taking 24 grains a day. At this juncture an attempt at suppression was made, and as a result five grains of morphia were substituted. Ten years ago the daily dose was 24 grains of morphia, when an attack of pneumonia occurred during which it was reduced to 12 grains, at which it remained. Continuing to enjoy good health, he did not make any further attempt at giving it up, but at length symptoms of dyspnœa set in with stomach troubles that made matters less pleasant. Sleep at night had now become a thing of the past. It was impossible for the patient to repose in bed, and he sat up in his arm-chair reading all night. In the daytime he dosed in the intervals of his receptions. He did not lose his mental vigour or memory. Finally, however, the gastralgia became chronic and his legs began to swell. When I saw him the swelling had disappeared; but in other respects he was the same as he had been for the last three years. The insomnia was absolute at night; the little sleep he had consisted of intermittent dozes in the intervals of receptions. There were also the dyspnœa, which caused him to pass the night in his arm-chair as already related, and painful dyspepsia which made everything but coffee and milk difficult to take. There were great emaciation, his weight being 57 kilogrammes, and extreme exhaustion. Besides this he suffered from occasional attacks of malarial fever. He was to have placed himself under my treatment at once, having left Central America for that purpose only, but being seized with an attack of fever he was induced by his friends to call in an eminent professor of the Paris Faculty, who declared that reduction of morphia in such a state of emaciation would mean death but that when a certain amount of flesh had been put on and the general health had improved the morphine could be diminished without danger. The patient objected that the emaciation was caused by the morphia and that he ought to pick up flesh by leaving it off, but the threats of death being repeated and it being promised that he should gain a pound a week by the treatment he allowed himself to be persuaded. For seven weeks the patient's health continued to decline and his weight decreased to 55 kilogrammes. Another professor who was now consulted gave it as his opinion that it was a very difficult case and advised hydrotherapy, but the patient did not like the idea and decided to place himself in my hands forthwith. He had increased from 10 to 12 grains of morphia and had lost a corresponding number of kilogrammes of weight during the preceding two months.

On commencing treatment he was taking the 12 grains by the mouth, and in one dose only. This was to be taken at 8 A.M., a third of a grain to be diminished daily. On Nov. 1st he had reduced as per programme to seven and one-third grains and now entered the Maison St. John de Dieu. By the 10th sleep, which had been better since the beginning of the treatment, now came rarely before 4 A.M. On the 12th one and a half grammes of hydrate of amylene, repeated every two hours after 12 P.M., gave six hours' uninterrupted sleep. On the 17th the patient felt wonderfully well and was at two grains. The stomach was better than for years previously, the digestion was good, with no craving, and the sleeplessness was remedied by hydrate of amylene. The patient had all the time been taking digitalis and bicarbonate of soda. On the 19th he had morphia, one and two-thirds grains. The patient began to complain of discomfort; and I was most anxious to slow the progression, but his friends (and whenever I called upon him I found him surrounded by half a dozen of them) were all for "firmness." He was therefore constrained to continue at the same rate of reduction. The time for giving the morphia was now changed to 9 P.M. Until the 25th the progression was kept up in the same manner, although extra doses were given when the patient would bear it no longer. Bromide of potassium was now tried, but the next day the patient was miserable, sitting almost in the fire to keep warm. Morphia, one grain. From this date (Nov. 25th) when the patient was taking one grain of morphia, until the 30th, it was decreased by one-sixth of a grain daily, cannabis indica being given in increasing doses from 30 to 70 drops, and laudanum in rectal injections to the amount of 25 drops on the last two days. By Dec. 1st the patient was to have no further medicine of any kind but to rely on the hot-air bath, but he could not bear the feeling of suffocation and the attendant gave him a small dose of chloral. On Dec. 3rd he had slept very little, but he was free from craving. Two days later he left the establishment, still suffering from insomnia, and three months later I heard that with this exception he was doing well, having recovered his health and his ability to sleep, when he could manage it, on a couch.

The most interesting question arising out of this case, in my opinion, is that of the conduct which should be adopted when the patient begins to complain of suffering. I think myself that when a morphine *habitué* has given proofs of firmness and goodwill he should be credited with good faith and encouraged for what he has accomplished, instead of being suspected of a desire to relapse. To put on moral pressure, to make a man do a little more when he has really done his best and has arrived at the limit of endurance, is unwise. Almost the whole secret of treatment in a morphia case consists of knowing when to take the initiative and to counsel slower progress. If the progress has been too fast one may even go back a day or two, but by slowing in proper time all suffering may be obviated and a temporary increase, which is a bad precedent, prevented. It is better for the medical attendant to prescribe the reduction than to be obliged to yield to the patient's requirements.

The next case I report more on account of its intrinsic interest than as an example of a successful conclusion, for though the present condition of the patient was entirely unhoped for I am very much afraid that there is every likelihood of a speedy relapse.

CASE 6.—A gentleman, 30 years of age, wrote to me from England describing his case and asking me to undertake his treatment. Eight years before he had had malarial fever in South Africa with black urine, albuminuria, and general œdema, followed by the most extreme emaciation and prostration, to such an extent that he had to be carried about. For some time he was also annoyed by phthiriasis. Returning to England to die he picked up on the voyage home to a certain extent. But rheumatic arthritis now intervened and the joints became contracted and ankylosed besides being the seat of constant, with periodically increased, pains. The left knee became ankylosed at the right angle. Three years afterwards, consulting Sir William Mac Cormac, this was broken down, the limb being straightened to the position of standing at ease and one of the arms is now fixed at a right angle, the other assuming naturally this angle but having slight motion of flexion and extension. After the breaking down of the knee the patient began the use of morphia, and his life was passed in going from one health resort to another with his nurses. Besides morphia he became addicted to excessive quantities of alcohol and in driving recklessly under this influence he was twice pitched out of his dogcart on to his damaged limbs. The inflammatory condition had been aggravated by gonorrhœa and his health had not been improved by syphilis. Two years ago he suffered from an acute attack of rheumatic fever and was given such doses of salicylate of soda that the heart's action became extremely slow and imperceptible. The patient remained in a state of coma for 10 hours. His medical attendant having given hypodermic injections of atropine for this condition this alkaloid was also used abusively until he took a tubeful of tabloids a day, symptoms of mental derangement being ultimately caused.

The letter in which I was made aware of these facts was so strange and excited that I did not like the look of the case at all and advised that someone should be sent to me who was well acquainted with the patient and could furnish me with the fullest particulars of his case. A few weeks later his mother came to Paris, and her account of his unmanageableness was such that I would not hold out any encouragement, but I consented to treat him without guaranteeing any kind of result. On his way to Paris he was persuaded to put himself into the hands of a "specialist" who told him that the immediate danger was the morphia and that he would allow him even more whisky to enable him to give this up. He had at this time four grammes of albumin per litre. After a short time he came on to Paris. I saw the wreck of what had been a good-looking fellow, a face and body puffed and bloated from alcoholic excess. Besides the symptoms already described, he was suffering from morning sickness, for which brandy was taken as a medicine, whisky being pegged at during the rest of the day, and wine being taken liberally at meals. There were four grammes per

litre of albumin. I declined to discuss the question of morphia until the last drop of alcohol had been renounced, the cessation of the added addiction being in such a case a *sine quâ non*. I felt convinced that my connexion with the case would last at the outside but a week, and, indeed, for about this time he trifled with the treatment; but at the end of the week I called one day when he was more than usually fuddled, and it appears that he felt so ashamed of himself that he took a sudden resolution and eight days afterwards he had given up all stimulants. Six weeks later the albumin had disappeared entirely. The morphia treatment was carried out on the usual lines, except that he was unable to take hot-air baths on account of a feeling of discomfort about the heart, although he had brought a portable apparatus with him. For a couple of months the progression went on, but when he had got to about half a grain he was taken with a painful subacute attack of his joints, and thinking that the Paris air did not agree with him he left for Ostend to recruit. Instead of being away six weeks, as was intended, from Ostend he returned to Brighton, relapsing as regards morphine but keeping strictly away from alcohol. His face and body had resumed gradually a healthy appearance, he was able to put on clothes that had been too small for years, and his friends all considered the change in his appearance as miraculous. Five months later he began to experience uncomfortable sensations about the heart and once more he returned to Paris. On this occasion the treatment was renewed, and in the course of a couple of months he got down to a few centigrammes of morphine by the rectum. I begged him to stay until he was entirely cured, pointing out how surely he would relapse; but he was no longer afraid of pain as I had found means to suppress that entirely and he felt sure that he would be able to effect the remainder of the reduction by himself. In Brighton he had two returns of the pains and on each occasion he discovered that he had committed infractions of the treatment that had prevented it unawares. On each occasion the pain disappeared as soon as this was rectified. Finding a month later that he had again relapsed he came back once more to Paris, as I hoped until I should allow him to leave. Besides his crippled condition, which always made walking difficult, a swelling had developed on one of the flexor tendons of the foot which was painful on pressure, so that he was unable to relieve his restlessness by walking about. He was then taking two grains of morphia by rectal injections. In 10 days these were suppressed without discomfort; but the day after he felt an uncomfortable restlessness and had 20 drops of laudanum. He admitted that he had frequently had similar restlessnesses as a result of his rheumatic condition and enforced immobility, so that it could not, according to him, be fairly ascribed to craving. To indulge him I allowed him to have a small dose of heroin, but I found that in the course of a few days he was increasing the dose and he admitted looking for it with greater desire than he had ever experienced before. It caused also great disturbance of sight and a condition of sub-delirium. It was stopped and a small dose of meco-narceine was given instead. But he was not yet destined to be entirely cured, for the nurse let him fall out of bed on his worst arm and a few hours afterwards there was considerable local inflammation and swelling, with a temperature of 103° F. Fearing mischief and in view of his restlessness and sleeplessness I gave him half a grain of morphia hypodermically, with the result that the next day the temperature was normal, and the joint which had been wrapped up in glycerine of belladonna was no longer tense and tender. As I would give him no more morphia he had to fall back on the meco-narceine solution, and the next morning I found that he had taken about a grain. For some days this was continued and my patient then declared that he must go back to Brighton on important business, being convinced that he could give up the meco-narceine by himself in the course of 10 days. It should be noted that with the exception of the two occasions above mentioned there had never been the slightest return of pain, whereas for years previously he had never been a week at a time without experiencing it, especially in bad weather such as we had been constantly having. Much against my wish the patient left for Brighton, promising to write for guidance if in difficulty. For three weeks there was no news, and then came a telegram saying that he was dangerously ill and calling for my presence at once. On arriving in Brighton I found that he had relied upon having a sufficient provision of meco-narceine, but that it had run out unexpectedly and it had been impossible to procure any in Brighton. I had felt sure that whatever folly was committed he was safe with the albumin before his eyes from returning to whisky, but this is what he had actually done. He had when I arrived been five days without meco-narceine, steadily drinking whisky, and his heart was in a most unsatisfactory condition. Half a grain of morphia was given to enable the whisky to be stopped immediately. The face was looking bloated and distorted and the urine was slightly albuminous. The next day the meco-narceine was resumed and I stayed for a fortnight until he was taking only three cubic centimetres. A week later he gave me to understand that it was all finished and as far as any real difficulty is concerned there is no reason why this should not be so. The return to alcohol, however, makes me think that there is very little hope of a permanent result, and if one or the other must be taken it is better that it should be a moderate quantity of rectal morphia. In the course of the treatment he had lost over two stones of unhealthy fat.

This case is one of the most remarkable that I have ever met with. The patient was handicapped by his crippled condition which condemned him to immobility and his incapacity to bear hot-air baths. I did not at first expect to meet with any success at all. The case was also remarkable for the excruciatingly painful feelings caused occasionally in the head by certain injections of morphia. Nearly every *habitué* experiences sometimes a painfully constrictive feeling after injections which are supposed to have been thrown straight into the veins; but in this the agony was acute, the patient remaining speechless and paralysed and only able to use signs to express his anxiety. In this case the final result—temporary although it probably is—was at first absolutely unhoped for, but when the patient had given up the alcohol and his albumin had disappeared the courage with which he continued the treatment made me hope that he might be weaned without suffering. For although when away from me he relapsed there was no nonsense when he came back and he did not make his discomfort a pretext for delaying progress. Notwithstanding the fact that he was so heavily handicapped in not being able to comply with so many of my recommendations (Turkish baths, amusements, and occupations) I was greatly disappointed that he should feel any discomfort, but instead of grumbling he would seek to console me by assuring me that he had had such discomforts independently of morphia and that although the treatment adopted had put an end to his rheumatic pains the restlessness he experienced was probably due to this cause.

The last three observations are examples of the class of cases to which I have alluded in which reduction of morphia results in hysterical affirmations of discomfort which are in reality false. In such a case it is the knowledge that a small dose is being given that causes the distress, which, if the progression is properly carried out, is purely imaginary. And the patient is not satisfied until he is convinced that he has obtained what he supposes he requires. The psychology of such cases is very complex; but the practical upshot is that these patients should never know how they stand in their progression or what other medicines are being given for their relief.

The following is an example of a cure under difficulties.

CASE 7.—A young man, aged 29 years, was sent to me by Professor Hallopeau. Five years before he had had tuberculosis and pneumothorax. He had taken morphia for three years altogether and had been demorphinised five times. Two months previously the morphia had been suddenly cut off, and on leaving the institution where he was treated he had immediately relapsed, declaring to his father that he would always return to the morphia if treated by compulsion, but that he would consent to a gradual reduction on the principles laid down in my book, with which he was acquainted. His mother warned me that he could not be believed, that he was the most vicious being in existence, and I afterwards found that he took a positive pride in keeping up his reputation. His body was covered with sores, resulting partly from abscesses and having all the appearance of rupia, and the existence of syphilis was proved by other symptoms, amongst them destruction of the nasal septum. He refused to submit to anti-syphilitic treatment in order to prevent the sores improving and the numerous abscesses healing, so as to continue to have a pretext for keeping up the morphine.

To begin with, the cocaine which he was also taking to the amount of 15 grains was suppressed in a few days. The morphine had been reduced from six grains to a fifth of

a grain, and he was beginning to put on flesh. The emaciation had been excessive. My assistant unfortunately allowed himself to be persuaded at this moment to give him a small dose of heroin and in a few days he became quite unmanageable and developed a condition of semi-mania and agitation. When I was told this I stopped the heroin at once, allowing four grains of morphia, and after a fortnight's resistance, rectal injections being substituted and the patient professing to be entirely free from discomfort, the treatment was organised in a much severer manner. He had previously supposed himself to be getting cured voluntarily. After a week it was discovered that he had all the time managed to deceive. Each time the rectal supply of morphine was given he had slipped the cannula off the syringe and fixed it to a hypodermic needle previously inserted in the skin of the abdomen. When this was discovered the possibility of its repetition was guarded against, and the treatment was henceforth carried on without reference to his wishes or recriminations. In 10 days more the morphia was suppressed without his knowing it. He acknowledged that he had had no feeling of craving, but notwithstanding this he felt an irresistible impulse to take any drug that might be left at his hand. A fortnight after the last morphia he recognised that the mercurial treatment which he had been persuaded at last to adopt had been of the greatest benefit. All his sores and abscesses were cleaning and healing; but here, again, to make up for lost time he would treat himself in his own way by excessive doses. He declared that the protoiodide of mercury gave him feelings of euphoria.

The patient in this case is certain to relapse, for although he admits that he has no craving his one wish is to find a pretext for returning to morphia. He is in the same state of mind as the greater number of those who have been cured by compulsion in special houses, and is an example of the hopelessness of a cure being permanent when so conducted.[9]

CASE 8.—An American lady, 28 years of age, voluntarily submitted to be treated in order to please her protector; but when the morphine was getting low, although she did not ask for more, she manifested every hysterical symptom imaginable calculated to force my hand. It began by hysterical vomiting and anorexia. This condition not having been considered by me as a sufficient reason for moderating the treatment, a consultation was asked for with Professor Raymond who endorsed my statement that it should be continued as before. As the progression continued the intention of returning to morphia was admitted, the bitterest complaints were made as to craving, and symptoms of extreme hysterical agitation developed. Fortunately, all her servants recognised that it was their interest to prevent her relapsing and combined to coöperate in the treatment; and the different medical men whom she insisted on seeing, with one exception, declared that the treatment should be carried through. To counteract this rather strange exception I fortified myself by the coöperation of Professor Labadie-Lagrave and henceforth no further interference was allowed and the progression was continued mercilessly. It is not that there was any real suffering, but a refusal to give a supplement of morphia to relieve the terrible craving that was simulated would throw my patient into the most violent excitement. On one occasion, in her anger at not being able to have her own way, she very nearly managed to drown herself in a large American bath. After being received with speechless indignation when it was not with tearful reproaches, I could always manage to excite her interest, and 10 minutes later she would be gaily talking about some absorbing matter, toilette, jewellery, or the races, or, perhaps, the progress of my other morphia cases, in which she took great interest. She recommended to me, for them, "the greatest firmness." The complaints of "craving" would be repeated at first from time to time; but after she had forgotten them two hours would often elapse without its being remembered. The reduction was carried out under these conditions, imaginary extra doses being sometimes accorded, and the morphia was given up as per programme. Unlike the next case to be related, when she recognised that she was cured she was most grateful.

CASE 9.—A lady, aged 50 years, but looking 70 years of age, was sent to me by Dr. Bérillon. She was covered with abscesses, she had scarcely a tooth left in her head, the urine was slightly albuminous, and she was in so great a state of prostration that her ordinary medical attendant in the suburbs did not expect her to live and looked upon her removal to Paris as most dangerous. Before coming under my care the morphia had been kept within bounds to a certain extent by her medical man and she was then only taking 12 grains. In this case the same thing occurred exactly as in the previous one. When the last hypodermic syringes were reached the patient, who was resolved to compel me to return to larger doses, manifested all kinds of hysterical symptoms and claimed to be suffering from the most acute craving. She had begged me on her knees not to delay the commencement of her treatment at first, when alarmed about her condition, for there had been some question of a delay for a few days. But as occurs in these hysterical cases when the morphia was reduced to the period of rectal injections, in which period it is impossible to feel craving, she became loath to give up the syringe and wanted, as a fact, not to renounce all treatment, but to order the progression herself with me to countersign it. She had already been treated by dozens of other medical men who had been compelled either to look on or to throw up the case and she did not intend to allow herself to be constrained by me any longer than it suited her inclination. Supported, however, by her husband, she really took what had been arranged, thinking all the time that she was working her own sweet will. She had been having no morphine whatever for three weeks before she had any idea that she was near the end. Here the strange perversity of the hysterical temperament was fully shown. For tired at last of carrying on a comedy of a scene each night before I would allow myself to give the (imaginary) extra morphine, I informed her one evening that she had taken none for three weeks and that I would not lend myself to this nonsense any longer. Instead of being pleased she became simply enraged, and, having recovered her health, persuaded her husband to give me my *congé*. A few days later she was again taking large doses of morphia, and six weeks after she was found dead in her bed from an overdose of chloral.

There are two interesting points in this case: the first is that notwithstanding her protests of craving when she was aware of what she was taking, she was cured by my plan without discomfort; the second is the fact that in the morphia habit, however bad the physical condition may be, recovery is possible if the morphine is given up.

Paris.

[9] My previsions have been realised since writing this paper, the patient having relapsed to cocaine, not morphine—that is, not on account of a craving, but in order to re-taste the regretted stimulation.

PASTEURISATION OF INFECTED MILK.

BY E. SYDNEY ST. B. SLADEN, M.D. CANTAB.,
JOHN LUCAS WALKER STUDENT.

THE danger of using milk containing micro-organisms that cause scarlet fever, typhoid fever, diphtheria, and consumption is diminished by heating it to 80° C., and keeping it at that temperature for 10 minutes. If the milk be heated to 85° C. all such danger appears to be removed. In order to obtain exact information on this point I have collected the statistics contained in the following table in which are given the temperature and time required to bring about the death of, or to inhibit the action of, the tubercle bacillus. This temperature of 85° C. is higher than is required to kill the micro-organisms of scarlet fever, typhoid fever, and diphtheria.

The first column gives temperatures rising by five degrees from 50° to 90° C. The second, third, fourth, and fifth columns give a summary of the results arrived at by G. Sims Woodhead[1] in his report to the Royal Commission on Tuberculosis. The sixth column gives the opinions of various workers on this point.

The danger of using milk yielded by cows that have not passed the tuberculin test is without doubt a real danger, especially in the case of infants, young children, delicate people, and all those who have to be fed on a milk diet.

[1] 1. Report of the Royal Commission appointed to inquire into the Effect of Food derived from Tuberculous Animals, 1895, Part I., p. 15. 2. Appendix to the above report, pp. 145 to 179. 1 and 2 refer to experiments made with milk.

TABLE SHOWING THE TEMPERATURE AND TIME REQUIRED TO BRING ABOUT THE DEATH OF, OR TO INHIBIT THE ACTION OF, THE TUBERCLE BACILLUS.

Temperature.	Inoculation.	Feeding.			Results of various experiments by—
		Guinea-pigs.	Cats.	Pigs.	
50° C.	15 hours.	5 hours.	4 hours.	Not stated.	——
55° C.	7 ,,	3 ,,	Not stated.	,, ,,	Forster and C. de Man,* four hours.
60° C.	8 ,,	25 minutes.	15 minutes.	Over the hour.	Forster and C. de Man, one hour; Bonhoff,† 20 minutes; and Schroeder,‡ 15 minutes.
65° C.	4 ,,	2 hours.	10 ,,	Over 40 minutes.	Forster and C. de Man, 15 minutes; Forster,§ 15 minutes.
70° C.	45 minutes.	20 minutes.	30 ,,	,, 45 ,,	Forster and C. de Man, 10 minutes; Yersin,¶ 10 minutes; Lidoux-Libard,** one minute.
75° C.	30 ,,	15 ,,	Over 15 minutes.	,, 15 ,,	Bitter,†† 15 minutes at 75° C.; Forster and C. de Man, not stated
80° C.	Simply heated to.	Simply heated to.	Simply heated to.	,, 10 ,,	Forster and C. de Man, five minutes; Copenhagen Milk-supply Company,‡‡ 30 minutes.
85° C.	2½ minutes.	,, ,,	Not stated.	Not stated.	Forster and C. de Man, not stated; Bang,§§ a few seconds.
90° C.	Not stated.	,, ,,	,, ,,	,, ,,	Forster and C. de Man, two minutes.

* Archiv für Hygiene, Band xviii., Heft 2. † Hygienische Rundschau, 1892, No. 23. ‡ Bulletin of the United States Bureau of Animal Industry, No. 7, p. 75. § Hygienische Rundschau, 1893, No. 15. ¶ Annales de l'Institut Pasteur, tome ii. p. 64. ** Grancher and Lidoux-Libard: Archives de Médecine Expérimentale, &c., 1892, vol. iv., p. 1. †† Zeitschrift für Hygiene, 1890, Band viii., p. 240. ‡‡ A. Steward MacGregor, British Vice-Consul, Copenhagen, 1890. §§ Nordiskt Medicinskt Arkiv, 1899, N:O 22.

The danger of using milk that is not heated in any way is sometimes present where the water for washing the milk-cans is contaminated with the typhoid bacillus, or where the milk is infected by the persons employed in the dairies who may be suffering or recovering from mild attacks of scarlet fever or diphtheria. With regard to the above well-authenticated outbreaks have occurred. The following evidence is conclusive as to the danger of using raw milk containing virulent tubercle bacilli. Dr. Harold Scurfield[3] quotes Bang as follows: "In any large herd in which tuberculosis is rife one will be certain to find one cow the milk of which contains tubercle bacilli and which has tuberculosis of the udder." Out of 144 samples of milk coming from the Liverpool cowsheds, four, or 2·8 per cent., were found to contain the tubercle bacillus, but of 24 samples of milk "from the country" taken at the Liverpool railway stations, seven, or 29 per cent., were found to contain this bacillus. In some later experiments in Liverpool 12 out of 228 samples of town milk—i.e., 5·2 per cent.—were found to contain the bacillus, and nine out of 67 samples of country milk—i.e., 13·4 per cent. In Manchester 17 out of 93 samples of country milk were found to contain the tubercle bacillus. By permission of the farmers the city veterinary officer visited 16 farms from which the milk came, and on 14 of these farms he found at least one cow with tuberculosis of the udder. Another example is cited by Nocard.[3] The seventeen-year-old daughter of a medical practitioner in Geneva was in perfect health up to the end of 1892. No case of tuberculosis had occurred either on the father's or the mother's side of the family for several generations. In 1893 she began to waste away and the practitioner was able to assign no cause for the wasting; she died in a few months. A post-mortem examination showed that tuberculosis of the bowels was the cause of death. Inquiry showed that the family used to spend every Sunday at a small estate on the hills, and that this young girl was particularly fond of milk fresh from the cow. Four of the five cows on the estate when tested with tuberculin were found to react and were slaughtered. Two of the four had tuberculous disease of the udder. Dr. R. G. Freeman[4] writes as follows: "It has been thought that a protection may be provided by a germicidal action of the gastric juice on the tubercle bacilli. That such protection is not afforded by the gastric juice of guinea-pigs has been shown by the experiments of Baumgarten[5] and of Fischer,[6] nor by artificially prepared gastric juice by those of Falk.[7] As a matter of fact, we know that primary intestinal tuberculosis does occur in man. Woodhead[8] states that he has seen a very large number of cases in which infection seemed to be from the intestine. Cohnheim, Aufrecht, and Peterson[9] hold the same view. Three cases of evident primary tuberculosis of the intestine have been reported recently; one in an adult by Dr. Hodenpyl,[10] and cases in infants by Dr. Northrup[11] and by Dr. J. Lewis Smith and the writer.[12]

CLINICAL EVIDENCE OF THE TRANSMISSION OF TUBERCULOSIS BY MILK.

Clinical evidence of the transmission of tuberculosis by milk is less satisfactory than is that furnished by some other diseases on account of the long duration of the incubation period, the less acute character of this disease, and the varying degree of susceptibility to it found in different individuals. Some cases, however, are reported in which the evidence against the milk is fairly strong. Thus, in a dairy in Scotland[13] three cows were found to have tuberculous disease of the udder. In the institution to which this milk was supplied the mortality from tuberculosis during the last year was 30 per cent. and during the preceding year 40 per cent. of the total mortality. Brouardel[14] reported that in a boarding school in which there were 14 girls five contracted tuberculosis from drinking the milk of a tuberculous cow. Ollivier[15] tells of another boarding school in which milk from a tuberculous cow was used and in which 13 cases of tuberculosis occurred. Dr. Demme[16] states that in the Children's Hospital at Berne four infants, with no tuberculous ancestry, died from intestinal and mesenteric tuberculosis as the result of being fed upon the unsterilised milk of a tuberculous cow." Kanthack and Sladen[17] found on examination of the Cambridge milk-supply that more than half the supplies tested—nine out of 16—proved infective, while of the 90 guinea-pigs inoculated in the course of the experiments no less than 23 (25·55 per cent.) developed tuberculosis. There is an opinion prevalent in some quarters that the conveyance of tuberculosis by cream is slight as compared with danger of its conveyance in milk. These experiments point in exactly the opposite direction. Three times out of the nine cases in which a positive result was obtained did the cream produce tuberculosis when the sediment failed to do so, and in no single case was the sediment infective when the cream was not equally or more so.

The following facts are taken from Professor Woodhead's

[3] The Use of Tuberculin for Lessening the Prevalence of Tuberculosis amongst Cattle and Children. 1899.
[3] The Animal Tuberculoses, p. 73.
[4] Milk as an Agency in the Conveyance of Disease, Medical Record, March, 1896.
[5] Lehrbuch der Pathologischen Mykologie, 1890, p. 549.
[6] Archiv für Experimentelle Pathologie und Pharmakologie, 1886, Band xx., p. 446.
[7] Virchow's Archiv, 1883, Band xcii., p. 177.
[8] Medical Press and Circular, 1888, xiv., p. 265.
[9] Würzburg Therapeutische Monatshefte, 1891, p. 18.
[10] Medical Record, 1896, vol. i., p. 313.
[11] Proceedings of the New York Pathological Society, 1890, p. 42.
[12] Smith and Freeman: American Medical and Surgical Bulletin, 1896, p. 1461.
[13] Woodhead: Medical Press and Circular, 1888, vol. xiv., p. 265.
[14] Vide Rouvier, Le Lait, p. 154.
[15] Bulletin de l'Académie de Médecine, 1891, tome lv., p. 288.
[16] Cornell University Agricultural Experiment Station Bulletin, vol. lxv., p. 137.
[17] THE LANCET, Jan. 14th, 1899, p. 74.

paper on "Tabes Mesenterica and Pulmonary Tuberculosis":—

From post-mortem examinations at the Royal Hospital for Children in Edinburgh, in 127 cases of tuberculosis in children tubercular ulceration of the intestines were found in 43 instances. It is interesting to notice that the age incidence between this lesion and the meningeal lesion corresponds very closely.

—	Intestinal tuberculosis.	Tubercular meningitis.
During the first year	1	0
1 to 2½ years	14	15
3 to 5½ ,, ...	10	21
6 to 7½ ,, ...	7	8
8 to 10 ,, ...	5	8
11 to 15 ,, ...	6	2

In 14 out of 100 cases in which the mesenteric glands were affected there was no tubercle found in any other part of the body. In the class from which the patients in the Royal Hospital for Sick Children are drawn the infants during the first year of their life, and sometimes for a longer period, are suckled at the breast. After this, however, the diet is extremely mixed, and as a rule it is extremely unsuitable, but it is in by far the larger proportion of cases partially composed of cow's milk. As we have already seen it is after this first year that there is such a rapid rise in the number of cases in which the mesenteric glands are affected. During the first year, whilst the child is suckled by its mother, it is not nearly so liable to mesenteric tubercle as at a later period. Anyone who has worked at the subject will have been struck by the fact that although tuberculosis in the human subject is so frequently met with in young married women, tubercular mammitis is extremely rare—so rare, in fact, that Dr. D. Hubermaas[18] was able to collect and record only some eight cases. In cattle, on the other hand, where the mammary gland carries on its functions under conditions which are far from normal, this tubercular mammitis is not by any means of infrequent occurrence. Albert[19] has recorded the case of a litter of young pigs, the whole of which, fed on the rejected milk from a tuberculous cow, succumbed to tuberculosis. Numerous other observers—Klebs,[20] Bollinger,[21] Stein,[22] Johne,[23] Martin,[24] Bang,[25] Toussaint,[26] and many others besides Koch,[27] concur in stating that if milk from cattle with tubercular udders be given for any lengthened period by the mouth (or injected into the peritoneal cavity) tuberculosis will be developed in calves, hens, &c. ..... Everyone engaged in practice will readily recall the numerous cases in which tubercular disease of bone, of synovial membranes, &c., has followed on measles, scarlatina, small-pox, and similar conditions, or in which an attack of typhoid or intestinal mischief or some form had been looked upon as marking the date soon after which serious tubercular mischief was developed. ..... It is of course impossible to bring direct experimental proof to bear in the case of the human subject, but the indirect evidence recently adduced by various continental and home observers, and the examination of series of cases such as those I have brought forward, should be very strong evidence that in children, especially in those who are subject to the wretched hygienic conditions and bad feeding to which unfortunately so many of our poorer class children are exposed, *tuberculosis may be contracted as the result of the ingestion of milk from tuberculous udders.*

It has been shown above in Professor Woodhead's paper that "Everyone engaged in practice will readily recall the numerous cases in which tubercular disease of bone, of synovial membranes, &c., have followed on measles, scarlatina, small-pox, and similar conditions, or in which an attack of typhoid or intestinal mischief of some form had been looked upon as marking the date soon after which serious tubercular mischief was developed." It is precisely in these cases that a liquid but nourishing diet is required. Milk is at once the most suitable food, and it is prescribed and its use enforced for several weeks or may be months at a time. If, however, this milk be given in the raw state (unless it comes from cows certified to be free from tuberculosis) it is more than probable that at times or continuously it may contain virulent living tubercle bacilli. It does not, then, seem at all extraordinary that some of these patients after being thus infected may succumb to intestinal tuberculosis or to *tuberculosis commencing in the intestines*, but having become generalised is more manifest in the meninges or the lungs. Thus, in the extract mentioned above, out of the 127 cases in 100 instances the mesenteric glands were affected, and out of these 100 cases only 20 were diagnosed as abdominal tubercle, and this would be considerably reduced were the doubtful diagnoses eliminated. It should be remembered that all who drink tuberculous milk are not susceptible to the disease, and that even some of the infected may recover. The disease in the abdominal, mesenteric, and other glands may become stationary, and the nodules may calcify, just as the disease or nodules do in other parts of the body.

In Denmark whenever an owner of cattle requests that his cattle should be tested with tuberculin without charge to himself, the State demands that certain rules must be conformed to; amongst the more important of these are the following: 1. After the test has been applied the herd is separated into two portions, the sound and the reacting animals; the milk from the reacting animals must not be used as food by man or animals unless it has been boiled or heated to 85° C. 2. In large dairies, if any of the milk is not used during the day, this milk must be heated to 85° C. previously to its return to the farms where it may be used for the purpose of feeding animals. 3. On some farms it was found that although there was no tuberculosis amongst the cattle a number of pigs contracted tuberculosis and died from this disease. This led to an investigation when it was found that the heating of the milk returned from the larger dairies was not properly done, and that living virulent tubercle bacilli were found in the returned milk. The law now compels all dairies that return unconsumed milk to heat it to 85° C.

Professor Bang[28] states that by a short heating at 85° C. the tubercle bacilli are killed, and if immediately afterwards the milk be well and rapidly cooled it loses its cooked taste; establishments which are carrying out this process of "Pasteurisation" are doing a good business in Copenhagen and other large towns. Calves and pigs, when fed on milk, whey, and buttermilk containing living tubercle bacilli, are exposed to the danger of contracting consumption just as is the human subject. Experiments carried out in Denmark, Germany, and other countries, prove conclusively that this source of infection plays an important part in the dissemination of tuberculosis. Fortunately it has been proved that an excellent butter can be made with cream that has been heated to 85° C. For some years it has been the custom in Denmark to heat cream to 80° C. and more rarely to 85° C. before churning. The new law does not absolutely demand this, but we may consider that the law which demands that all buttermilk must be heated to 85° C. before being returned will as a consequence bring about the practice that almost all the cream will be heated to this temperature, thus removing the difficulty of having to heat the buttermilk separately after churning. In an address given on the occasion of a visit of Suffolk farmers to Copenhagen in June Professor Bang said that in an experiment on five calves that were free from tuberculosis he gave to each of them a feeding of 40 cubic centimetres of milk taken from a tuberculous udder, and repeated this a week later. On post-mortem examination made some time afterwards he found that all five were affected with tuberculosis, the starting point in each case being the intestine. He emphasised this point to show the great importance of maintaining the careful separation of the healthy milk and the tubercle-infected milk so that there may never be a single chance of the milk containing living tubercle bacilli being given to healthy calves.

Cambridge

[18] Beiträge zur Klinischen Chirurgie; Mittheilungen aus der Chirurgischen Klinik zu Tübingen, Band ii., Heft 2.
[19] Quoted in the Journal of Comparative Medicine and Surgery, January, 1886, p. 93.
[20] Archiv für Experimentelle Pathologie und Pharmakologie, Leipsic, Band 7, p. 31, 1873.
[21] Ziemssen's Handbook, 1878, and Baier, Aertzl. Int. Bl., 1883.
[22] Inaugural Dissertation, Berlin, 1884.
[23] Fortschritte der Medicin, Band iii., 1885.
[24] Revue de Médecine, Paris, 10 Fév., 1884.
[25] Nordiskt Med. Arkiv, Band xvi., and Proceedings of the International Medical Congress, Copenhagen, 1884, vol. i., Pathological Section, p. 11.
[26] Comptes Rendus de l'Académie des Sciences, Paris, 1881, tome xcii., pp. 350, 741.
[27] Mittheilungen aus dem Kaiserlichen Gesundheitsamte, Band ii., Berlin, 1884.
[28] Nordiskt Med. Arkiv, 1899, N:O 22.

SURREY CONVALESCENT HOME.—Founder's Day at the Convalescent Home for Surrey Men at Seaford was celebrated on July 27th by a luncheon at the Esplanade Hotel, followed by a reception at the Home. Sir Trevor Lawrence, Bart., the chairman of the committee, said that the income for the year under review was £200 less than might have been expected. The committee submitted their ninth annual report which showed that 622 patients were admitted to the Home during the year from April 1st, 1900, to March 31st, 1901. The statement of accounts showed that the total income was £1657 and the total expenditure £1792.

THE ELECTROLYTIC TRANSMISSION OF SULPHUR FROM THE HARROGATE SULPHUR WATER THROUGH A PIG'S SKIN, AND ITS THERAPEUTIC VALUE ON THE HUMAN SUBJECT UNDER SIMILAR CIRCUMSTANCES IN ECZEMA, GOUT, &c.

BY FRANCIS WILLIAM SMITH, M.D. ABERD.

IN a paper by me published in the *British Medical Journal* of Feb. 16th, 1901, I proved that patients could be covered with nascent sulphur in a bath of Harrogate sulphur water by passing a constant current of electricity through it. This was confirmed by Professor Smithells, F.R.S. (Professor of Chemistry in the Yorkshire College, Leeds). I also stated that treatment of cases of eczema, gout, rheumatism, and peripheral neuritis did better by this method than by the patients simply lying in the bath of Harrogate sulphur water for so many minutes. I likewise said that I "believe nascent sulphur was driven through the patient's skin into the circulation." I have now proved that it must be so. Mr. Mark Woodhouse, the assistant electrical bathman at the Royal Baths, Harrogate, had been able to drive sulphur through three folds of blotting-paper by electricity. It suggested itself to my mind to try to do the same through a pig's skin.

A piece of pig's skin was tied round the mouth of an open-mouthed vessel the bottom of which had been previously knocked out. A piece of blotting-paper was placed outside the skin external to the vessel, and the positive end of an anode was placed on the blotting-paper. The vessel was

FIG. 1.

Sulphur deposited on a pig's skin by electricity from the Harrogate sulphur water.

then filled from the bottom with Harrogate sulphur water and the negative anode was put into it. Three milliampères from a 13-celled battery (constant current) were turned on for half an hour. The result was that nascent sulphur was deposited on the pig's skin, driven right through it, and on to the blotting-paper at the positive pole.

The three illustrations demonstrate what I mean. They are reproduced from photographs taken the next day, when the pig's skin was dry. The first two (Fig. 1 and Fig. 2) lost their round shape as tied round the neck of the vessel. This is from the puckering of the skin in drying. The reproduction on the blotting-paper (Fig. 3) shows the exact size and shape, because the blotting-paper did not alter in drying.

And now as to the therapeutic value of this discovery on the human being whose body is subjected to the same electrical treatment, in the same kind of sulphur water bath,

FIG. 2.

Sulphur driven through a pig's skin by electricity from the Harrogate sulphur water.

with the constant current. I consider that patients suffering from eczema do much better by treatment by this method than by simply lying in the sulphur bath. During the last two months I have had good proof of this, as the patients themselves and the attendants at the Royal Baths know. I will not occupy valuable space with cases, but such are the facts. Many cases of long standing which had derived no benefit by the old simple sulphur bath yielded to treatment.

FIG. 3.

Sulphur driven on to a piece of blotting-paper, having been driven through a pig's skin by electricity.

Of course, driving sulphur through a dead skin must be a very different thing from sending it through a living one where all the vessels and nerves are alive and active. I hope, therefore, that this simple discovery may be of benefit to those who suffer from eczema (especially gouty eczema), gout, rheumatism, and peripheral neuritis.

Harrogate.

Clinical Notes:
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CURIOUS SYMPTOMS AFTER ADMINISTRATION OF NITROUS OXIDE FOR DENTAL EXTRACTION.

BY A. STANLEY GREEN, M.B., B.S. LOND.

ON July 26th, 1901, I administered gas for Mr. T. H. White to a man, aged 26 years, using Barth's inhaler and allowing plenty of air. No trouble was experienced in producing complete anæsthesia and four teeth were extracted. A few minutes after recovering consciousness the patient complained of a numb feeling occurring first in his hands and then in his legs and feet. His hands were pronated, the fingers being slightly flexed and the thumbs strongly adducted. His hands were vigorously rubbed, but he complained of great pain. His respirations became rapid, at first sighing in character and then accompanied by stridor. His pulse was 84 and his colour was excellent; he was very restless and was quite unable to keep still for a moment. He was placed in the prone position, but he begged to be allowed to sit up. He was quite unable to articulate. As the symptoms continued for more than 20 minutes I compelled him to lie down and the pain gradually subsided, and after an hour's rest he was sufficiently recovered to return home. I know the patient well and he is not by any means of a hysterical temperament. I have administered gas more than 1000 times during the past three years and have never met with such a case. I should like to hear if any of the readers of THE LANCET have met with a similar experience.

Lincoln.

PISTOL-SHOT WOUND OF THE ABDOMEN.

BY COURTNEY NEDWILL, M.D.R.U.I., M.R.C.S. ENG.

THE patient was a boy, aged 10 years, who was admitted into Christchurch Hospital, New Zealand, on March 18th, 1900, under my care. Dr. A. J. Orchard of Christchurch, who was the first to see him, ordered his removal to the hospital. Dr. Orchard also very kindly assisted me at the operation. On admission the boy vomited bloody matter and was suffering from shock. He had had a full meal a short time before the accident. A small perforating wound of the abdomen in the middle line and about two and a half inches below the umbilicus had protruding through it a piece of soiled omentum three inches long. The skin having been purified the abdomen was opened in the middle line and the protruding omentum was ligatured and cut off. Nine perforations of the bowel, most of them considerably ecchymosed and contused, were brought together by Lembert's sutures. The perforations on the side of entrance were easily brought together, but on the side of exit they required to have the mucous membrane pushed back. Out of one of these openings a solid plug of fæces protruded. Two additional wounds of the mesentery were closed by sutures. For a couple of days the boy complained of pain and had a temperature just under 100° F., but afterwards the history was uneventful. The bullet was not discovered and the patient was discharged in three weeks.

In THE LANCET of Feb. 3rd, 1900, p. 310, Mr. A. Pearce Gould reported a successful case in which there were four perforations of the small intestine. I am induced to record this case on account of the number of perforations, but in view of recent South African experiences I am not prepared to say that the boy would have died had I contented myself with removing the soiled omentum and not opened the abdomen, although I fear the excrement extruded from the gut would have produced bad results.

Christchurch, New Zealand.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

SALFORD ROYAL HOSPITAL.

A CASE OF SIMULATED APPENDICITIS AND A FATAL CASE OF RECURRENT HÆMORRHAGE FROM THE EAR.

(Under the care of Mr. HERBERT LUND.)

THE contracted condition of the ascending colon in Case 1 was in all probability due to scarring after ulceration occuring during the attack of typhoid fever, though it is rare indeed for typhoid ulceration in the large intestine to be sufficiently extensive to give rise on healing to any noticeable diminution in the lumen of the colon. In such a case as this lateral anastomosis between the lower end of the ileum and the transverse colon might be of benefit. Case 2 is a very striking illustration of the importance of treating early all septic affections of the ear, even of the external auditory meatus. It is doubtful if the fall had anything to do with the subsequent suppuration.

CASE 1. *Contraction of the ascending colon giving rise to symptoms simulating recurrent attacks of appendicitis.*—A man, aged 24 years, was admitted into the Salford Royal Hospital on Sept. 6th, 1900, suffering from repeated attacks of pain chiefly confined to the region of the appendix and accompanied by constipation. He had had fairly good health until 1896 when he suffered from typhoid fever, and about eight weeks after convalescence from this his troubles began with pain in the right lumbar region and "jumping pains" which worked over the hip bone into the groin of the same side. The pain was accompanied by swelling in the right iliac region, tenderness on pressure, and constipation, the symptoms being relieved by enemata, rest in bed, and careful diet. Attacks of this kind occurred about every three months until Christmas, 1899, when the intervals became shorter and the condition was more persistent. During a particularly severe attack there had been vomiting, but never any trouble with the bladder; neither had there been any great reduction in the quantity of urine passed nor other symptom pointing to the attempts of a renal calculus to travel down the ureter. The patient was treated at home by two practitioners for appendicitis, but the medical man who advised hospital treatment considered that appendicitis would not account for all the symptoms, and in this opinion, as subsequent events showed, he was correct. After a week's rest in bed without any marked symptom the patient was seen by Dr. A. M. Edge, who suggested that the mischief was renal, the urine then containing much uric acid but no blood. A few days after this there was a fresh attack of pain with marked swelling and tenderness in the right iliac fossa, and the patient suffered from sickness and constipation; the temperature was 100·8° F. and the pulse ranged from 90 to 100. Opium was given, and the bowel being washed out with a simple enema the attack subsided. An operation was then undertaken for removal of the appendix, the difficulties of the case having been carefully explained to the patient.

On opening the abdomen no adhesions and no evidence of any attack of previous appendicitis were apparent, but the appendix was unusually long and quite free and distended. It was removed and found to contain fæcal matter which was easily squeezed out of the cut end by pressure upon the distal extremity. Believing that the source of all the mischief lay in the distended appendix the abdominal wound was closed with silkworm sutures (not in layers). The patient made a good recovery, but suffered greatly from constipation. At the end of five weeks after three days' inaction of the bowels vomiting occurred and suddenly became stercoraceous. The abdomen was opened in the middle line, and although the stump of the vermiform appendix was free, the cæcum was

so closely adherent to the inner surface of the first operation wound that the adhesions required cutting with scissors before the bowel could be released. When this was accomplished the ascending colon was gently dragged into view and then the symptoms originally complained of were explained. The colon was contracted to a size less than the calibre of the small intestine and felt thick and leathery. The cæcum was distended and the contraction of the ascending colon commenced abruptly. The transverse colon appeared to be normal. For days the condition was most serious, but eventually the patient returned home and although not fit to resume work he has kept fairly well. On May 20th of this year he called to report himself. He looked well and had had no recurrence of the old trouble, but he suffered greatly from sudden attacks of diarrhœa which occurred most often when solid food was taken; with soup, &c., however, he managed well. Examination of the abdomen revealed a tendency to ventral hernia at the site of the first operation and through the thinned cicatrix active peristaltic action of the bowel could be excited by pressure of the hand and when this was done fluid could be distinctly felt passing along.

CASE 2. *Hæmorrhage from the ear due to ulceration of the internal carotid; ligature of the common carotid; recurrent hæmorrhage; death.*—A girl, aged two and a half years, was admitted into the Salford Royal Hospital on April 13th, 1900, at the suggestion of the medical attendant, Dr. W. A. Ferguson of Pendleton, and, with the exception that from the right ear there was evidence of recent hæmorrhage, she appeared to be well and bright and did not show any signs of pain. There was no redness, tenderness, or swelling over the mastoid; the temperature was 101·2° F., the pulse was 96, and the respirations were 44. Immediately before admission there had been a profuse hæmorrhage which "soaked through the pillow" and was "bright red in colour." At the angle of the jaw there were enlarged glands and the tonsil of the corresponding side was enlarged. The child was well nourished and did not look ill. There was a large perforation in the right membrana tympani. The previous history was not very clear, but according to the mother the child received an injury to the head through a fall when 12 months old and this was followed in a few weeks by a purulent discharge from the ear which soon stopped with local treatment. The first hæmorrhage occurred on April 11th, the second on the following day, and then from the 13th to the 22nd there was rest, but early on the 22nd there was a severe attack which was undoubtedly arterial in character. Plugging the auditory meatus with iodoform gauze controlled the flow which came entirely from the ear and was arterial. The temperature from the 14th to the 22nd had never been above 99°, but generally subnormal; the pulse averaged about 74. On the 23rd a severe attack completely blanched the patient and the following day Mr. Lund ligatured the common carotid. On the 25th there was hæmorrhage again from the ear at 9.50 A.M., and at 1 P.M. there was profuse hæmorrhage from the ear, nose, and mouth, and death followed at 2 P.M.

Necropsy.—At the post-mortem examination, which was made 24 hours afterwards, the brain and membranes were found to be perfectly healthy; there was no evidence of necrosis in the roof of the tympanum or the petrous portion of the temporal bone. The auricle being reflected forwards the floor of the bony meatus was found to be carious and perforated, and adjacent to it was a sloughing cavity of about the size of a small walnut containing recent blood-clot. The ligature on the common carotid was perfectly satisfactory. The internal carotid communicated with the abscess cavity and had evidently given way just before its point of entrance into the bony canal, the portion of the vessel in the canal being perfectly healthy.

Remarks by Mr. LUND.—The symptoms which simulated appendicitis in Case 1 evidently depended upon an overdistended cæcum endeavouring to unload itself into a contracted ascending colon, and these symptoms originated a few weeks after convalescence from typhoid fever. The distended condition of the appendix with fæcal matter and the ease with which the contents could be squeezed out convinced me, for the time, that its removal was called for, but in this I was wrong. In former cases, 33 in number, I had always found evidence of previous attacks of inflammation, and in this case the appendix was quite free, only distended. The strong fibrous union between the cæcum and the peritoneal surface of my incision has warned me to pay more attention to careful suturing; I now place my silkworm sutures at shorter intervals. The prognosis is not hopeful; the contraction of the ascending colon was extreme and not confined to one spot.

In Case 2 the mischief evidently originated in the floor of the bony meatus and spreading caused ulceration of the internal carotid. The perforations in the bone were not extensive enough to permit the passage of a large flow of blood, but probably the cartilaginous portion of the meatus had been stripped off the bony portion, allowing a free exit. The free anastomosis existing through the circle of Willis accounted for the rapid recurrence of the hæmorrhage which led to a fatal termination.

Reviews and Notices of Books.

Diseases of the Upper Respiratory Tract: the Nose, Pharynx, and Larynx. By P. WATSON WILLIAMS, M.D. Lond., Physician in charge of the Throat Department at the Bristol Royal Infirmary, Physician to the Bristol Institute for the Deaf and Dumb. Fourth edition. Illustrated. Bristol: J. Wright and Co. London: Simpkin, Marshall, Hamilton, Kent, and Co., Limited. 1901. Pp. 450. Price 17*s.* 6*d.*

DR. WATSON WILLIAMS'S manual has so grown that it will at first glance appear to be an entirely new work; it is, however, the original work enlarged, expanded, and brought up to date. The present, or fourth, edition contains a novel and very practical addition, for at the end of the volume are no less than 12 stereoscopic photographs of anatomical preparations with explanatory text, whilst a pouch in the cover holds a handy stereoscope which, if the directions given for its use are followed, will enable the reader to refresh his memory almost as well as if he had access to the specimens from which the photographs were taken.

The first chapter deals with the Anatomy and Physiology of the Nose and Larynx, including a short account of their development. The second chapter, on Examination of the Pharynx, Larynx, Nose, and Ear, with General Semeiology, contains some additions, the short description of the examination of the ear being new and not out of place. The directions for investigating the various parts and for the manipulation of instruments are clear and practical and we quite agree with Dr. Williams in his qualified approval of Kirstein's autoscopy. The remainder of the work, which is devoted to morbid conditions, is written, generally speaking, in a very able way and shows that Dr. Williams is fully determined and able to keep abreast with the times, and that when he shows a predilection for one side of a disputed point it is because he considers that the arguments for that view are fairly conclusive. He also brings into bearing his knowledge as a physician, as is especially noticeable in the short account of spurious hæmoptysis, and we cannot but think that its inclusion in a work such as this, one especially meant for the student, must be productive of good in directing attention to so important a point; the eight lines allotted to the treatment of hæmorrhages are, however, inadequate.

The chapter on Diphtheria is considerably lengthened and is further enriched by a very useful plate showing the various saprogenic cocci and forms of Löffler's bacillus which are depicted under various conditions and which will be valuable for reference in a doubtful case of membranous angina; the description of the clinical aspect is very good. We again quite agree with Dr. Williams when in discussing the relationship between tuberculosis and lupus he favours the view that the two are distinct, although he does not enter at all into the reasons on which his opinion rests. The tables and text dealing with the differential diagnosis of the more serious conditions of the pharynx and nose are excellent and might have been extended to diseases of the larynx.

The chapter on Diseases of the Larynx leaves nothing to

be desired with the exception of the point mentioned in the preceding paragraph, and it forms quite the best part of the book. Dr. Williams, after quoting the various theories as to the etiology of atrophic rhinitis, states his belief that it is of the nature of a tropho-neurosis—a view which, we believe, will be gradually accepted as the correct one, and on the question of treatment he speaks very highly of the value of cupric electrolysis. On the vexed question of the choice of an anæsthetic in the removal of adenoids in children Dr. Williams says that he prefers nitrous oxide for short operations and not too deep chloroform anæsthesia for long ones. Not too deep anæsthesia is no doubt a great point for all but slow operators, as it must diminish the risk not to push the anæsthesia too far. The space given to sarcomata of the nose occupies barely one page and we have been unable to find any mention of bleeding polypus of the septum. We are pleased to note that Dr. Williams lends the weight of his authority against the practice of applying cocaine for the relief of hay fever.

The chapter on Accessory Sinus Disease is as complete as possible, and no better description of the modes of treatment of disease of the sphenoidal sinus can be desired. Dr. Williams here gives woodcuts of his special forceps for operations on the wall of the sinus, and which give the impression of being most valuable. A useful series of formulæ is to be found in the appendix. The illustrations, both coloured and otherwise, are of the highest order and do great credit to Dr. Williams's skill as an artist. The book itself is well and clearly written and more than maintains the high standard attained by the former editions.

A Manual of School Hygiene. By EDWARD W. HOPE, M.D. Edin., and EDGAR A. BROWNE, F.R.C.S. Edin. The Cambridge Series for Schools and Training Colleges. Cambridge: University Press. 1901. 200 pages. Illustrated. Price 3*s.* 6*d.*

THIS little manual on school hygiene is in striking contrast to a work on the same subject which has recently been written by Professor Shaw of New York. Although as regards size it is less ambitious it covers far more ground and includes certain details of minor surgery and medicine which belong more fittingly to the province of the ambulance lecturer; and further, although it cannot be denied that the care of the eye is a matter of vast importance in the education of children, in a work of such limited dimensions the space which has been devoted to the optical mechanism of eyesight and its pathological disturbances is altogether out of proportion and quite possibly above the level of understanding of those for whom it is intended. Apart from these reservations little fault can be found with Part I., which comprises chapters on School Buildings, Ventilation, Warming, Feeding, &c., or with Part II., which is concerned with the Personal Hygiene of the Child. With the Appendices 1 and 2 we are entirely out of sympathy: they contain respectively the building rules as enforced by the Board of Education and the regulations and instructions by the London School Board in relation to infectious diseases in schools. These regulations are not obligatory upon, nor even always applicable to, secondary schools, and Government teachers are either provided officially with them or can have easy access to them. The chapter on School Furniture and Writing enjoins an observance of very much the same principles as are recommended by Professor Shaw, although certain sentences are curiously expressed and often difficult to understand. For instance, in writing of the influence of an ill-adjusted desk and seat on the determination of short sight and distortion of the spine it is stated that "desks should be made to fit the children and not the children the desks." As long as they "fit" either alternative seems equally satisfactory, but in any case, "even under the most favourable circumstances, sitting at a desk means a strain upon the eyes and bones of the trunk." Surely, any detriment to the child from this proceeding affects the muscles and ligaments rather than the bones. In contradistinction to Professor Shaw, who insists on a central position, the authors recommend that in writing the copybook should be in a position to the right of the middle line and "sloped upwards about 20 degrees," whatever that may mean. But if this suggestion is carried out, we gather, "the writing slopes to the right," in fact, approximates to the Spencerian script which Professor Shaw gives good reason for condemning. The concluding chapter, which deals with "Over-pressure," contains much practical advice, both as regards its recognition and as regards its treatment. Taken as a whole this manual must be regarded as very complete and up-to-date, but there is a noticeable want of proportion in the general arrangement and the literary style is neither literary nor stylish.

LIBRARY TABLE.

Clinical Lectures on Stricture of the Urethra and Enlargement of the Prostate. By P. J. FREYER, M.A., M.D., M.Ch. R.U.I., Surgeon to St. Peter's Hospital, Lieutenant-Colonel I.M.S. (retired). London: Baillière, Tindall, and Cox. 1901. Pp. 115. Price 5*s.*—This little book is composed of six lectures which were delivered at the Medical Graduates' College and Polyclinic in November last; they have appeared in THE LANCET and the *Clinical Journal*. The first three deal with urethral stricture and its treatment, and that on the operative treatment of this condition is especially good. The author prefers in Wheelhouse's operation to discard the hooked staff for holding open the wound; he employs instead a flexible bougie which is passed by the meatus and projects through the wound; it is then bent upwards and both ends are held by an assistant; a loop is thus formed which holds steady the upper end of the wound. The three lectures on Enlarged Prostate are good, but the space at Mr. Freyer's disposal was hardly sufficient for a complete discussion and description of the several operative procedures which have been recommended for the radical cure or relief of this condition; and it may truly be said that this would not have been suited to the occasion when the lecture was delivered. The book is very readable.

Transactions of the American Dermatological Association at its Twenty-fourth Annual Meeting. Chicago: Pettibone and Co. 1901. Pp. 235.—Among many subjects of interest discussed at the last annual meeting of the American Dermatological Association probably the most important was blastomycetic dermatitis. Of this disease, only recognised within the last few years, already more than a dozen cases have been described and this volume contains an exhaustive pathological examination of some recent cases. Though no definite case has yet been recorded in this country there can be little doubt that the disease occurs here but has not yet been recognised. The volume contains a useful appendix of papers written during the past year by members of the association.

Functionelle Nierendiagnostik mit besonderer Berücksichtigung der Nierenchirurgie. Klinisch-Experimentelle Untersuchungen von Dr. LEOPOLD CASPAR und Dr. PAUL FRIEDRICH RICHTER. Mit 2 Holzschnitten. *(Functional Diagnosis of the Kidneys with special reference to Renal Surgery.)* Berlin and Vienna: Urban and Schwarzenberg. 1901. Pp. 156. Price 4 marks.—It is difficult to overestimate the importance in the surgery of the kidneys of a correct diagnosis of the renal condition, and especially of an exact knowledge of the relative efficiency of the two kidneys, for it may well be that the kidney which appears to be the

more severely affected may yet be the one which is chiefly carrying on the work of excretion and removal of this kidney would be followed inevitably by a fatal result. Such an occurrence has doubtlessly many times followed a nephrectomy performed with an insufficient knowledge of the relative capabilities of the two kidneys. Ureteral catherisation has been of the greatest service in this connexion. The possibility also of the absence of one kidney must be carefully considered before a nephrectomy is undertaken. This work contains a clear account of the methods by which the functional efficiency of the kidneys can be investigated and is well worthy of study by those who are specially interested in this branch of surgery, but its subject should be well considered by all who have to operate at any time on the kidney or ureter. The authors give notes of 90 cases in which they have investigated the condition of the kidneys and of the urine.

A Manual of Hygiene and Sanitation. By SENECA EGBERT, A.M., M.D. Second edition, enlarged, and thoroughly revised. London: Henry Kimpton. 1901. Pp. 436. Price 10*s.* 6*d.*—This book deals with both practical and general considerations. It contains chapters on Bacteriology and Chemistry as applied to the examination and analysis of food and water. It also deals with personal as well as public health and one interesting feature is a chapter on School Hygiene. There is also a good chapter on Disinfection and Quarantine in which the efficient disinfectants are described. The chapter on Stimulants and Beverages is written in a very sensible strain and especially the section on Alcohol. In dealing with the Impurities of the Air the author makes no reference to the excellent work of Dr. J. S. Haldane on carbonic oxide poisoning. He merely states that cases of poisoning by carbon monoxide are much more serious than by carbon dioxide and then adds that recovery from the effects of the former is slow and uncertain because this gas unites with the hæmoglobin of the red blood corpuscles, paralysing them, as it were, and rendering them unable longer to act as oxygen-carriers to the tissues. Now it is well known that sometimes extraordinarily rapid recoveries occur in cases of acute poisoning by coal gas, owing to the fact that the blood in the veins and most of the organs becomes only very partially saturated in cases of suffocation by gas containing carbon monoxide but no oxygen. As soon as the coal gas is removed from the lungs and a plentiful supply of oxygen or air is substituted for it the unsaturated venous blood still slowly entering the lungs takes up oxygen abundantly and so causes rapid recovery as soon as it reaches the tissues. Dr. Haldane found that from experiments on himself about six hours are required for the carbon monoxide to disappear entirely from the blood in severe cases of poisoning. The work is based on American practice, but its pages may be read with distinct advantage by students of hygiene in this country. It is well written, clear, and covers a somewhat surprising expanse of subject considering the size of the volume.

New Inventions.

THE KANNENBEER PROCESS OF PRESERVING BEER.

BEER is only a wholesome beverage when it is in good condition, assuming, of course, that it is made from irreproachable materials. It must be admitted that our present methods of storing and preserving beer are open to considerable criticism not only from the point of view of health but from the economic point of view also. Beer in cask, for example, is seldom sound to the last few pints owing to the access of air through the vent-peg orifice and to the accumulation of a sediment which is very prone to decompose. Bottled beer, again, is exposed to the disturbing influences of light, while it is not easy to detect or to remove any uncleanliness that may exist. There is, therefore, much to be said in favour of the system of keeping beer in air-tight and light-tight jugs as in the Kannenbeer process. Before, however, the beer can be "bottled" by this process it is necessary to devote some attention to its condition. In fact, it is found that to secure good results the best beer must be used and that special care must be taken to bring it to a desirable point of maturity. Otherwise the beer would not keep in sound condition and would probably throw a sediment, both of which disadvantages the Kannenbeer process is expressly designed to obviate and, as a matter of fact, does obviate according to our experience. We have recently witnessed the process, and it is well worth describing, as being a very praiseworthy endeavour to produce a beverage that will satisfy sanitary requirements. The beer is matured at the same stores as those where the "bottling" is done. The maturing process is slow, occupying not less than three months. During this time the beer gradually assumes a fine brilliant appearance and develops the characteristic flavours of well-brewed beer when in excellent condition. The beer is next carefully filtered—a very important step in the process. All this time the beer is kept quite cold. The beer is then run into the "Kanne" or jug, which holds a quart, without coming into contact with air. The jug is then closed by a lid pressing tightly by means of a spring upon a clean rubber cushion. The beer is thus kept away from the air and from the light, both of which are important factors in destroying the sound condition of beer. Each jug is then wrapped in paper to protect it from dust and dirt and so that it may look perfectly clean on the table. The process is not limited to one kind of beer, ale, stout, and lager being treated in a similar way. It is easy to reckon up the unquestionable advantages of this method. It seems to us not only to secure the beer against contamination and change, but to avoid certain unpleasant possibilities in the case of beer stored in other ways. The consumer can easily see for himself that the jug is clean and he will not be slow to appreciate the advantage of having beer on draught, so to speak (without any objectionable excess of carbonic acid gas), always in sound healthy condition. Moreover, the jug will be less likely than is a bottle to be used for the receptacle of poisonous metal polishes, carbolic acid, and other objectionable and dangerous contents. The method has our approval, therefore, on many grounds and particularly from the sanitary standpoint. The agency is at 17, Philpot-lane, London, E.C.

CHESTERFIELD MEDAL FOR DERMATOLOGY.—The Chesterfield medal for dermatology, given under certain conditions as the result of a competitive examination at St. John's Hospital for Diseases of the Skin, London, has this year been awarded to Mr. George Norman Meachen, M.B., B.S. Lond., clinical assistant to the Hospital for Diseases of the Skin, Blackfriars.

DENTAL HOSPITAL OF LONDON.—On August 1st, in the new hospital, Leicester-square, which was opened in March last, a conversazione was held and the prizes were distributed to the students of the hospital. The visitors, who numbered about 400, were received by Mr. T. Arnold Rogers, Mr. J. Smith Turner, Dr. Walker, and members of the staff. Mr. Morton Smale, in opening the proceedings, stated that the King had acceded to the request to grant his patronage to the hospital. Mr. Smale referred to the great success that had attended the affiliation of the hospital with the London University as a teaching school and remarked that 53 students had entered during the year, the largest number recorded in the history of the institution. It was announced that the Walker scholarship had been awarded to Mr. E. C. Sprawson and that Mr. G. Sheppard had gained both the Saunders scholarship and the Ash prize. Mr. Rogers stated that the new building owed its existence largely to the indefatigable energy of Mr. Morton Smale who, in company with Mr. E Lloyd-Williams, had during the year visited the United States to study the developments in dental teaching in that country.

THE LANCET.

LONDON: SATURDAY, AUGUST 10, 1901.

The Interim Report of the Royal Commission on Sewage Disposal.

OWING to the very great pressure upon our columns last week and the previous week we have been able to allude in only brief terms to the interim report of the Commissioners appointed in 1898 "to inquire and to report what methods of treating and disposing of sewage may properly be adopted." In our issue of July 27th we noted without comment the more important conclusions to which the Commissioners at this stage of the inquiry have come and which they have thought it desirable to make known. The difficulties of the inquiry may be judged from the fact that this interim report, which refers to three questions which appear to be of urgent importance, is the first pronouncement that has been made since the appointment of the Royal Commission three years ago. The consideration of the second item of the terms of reference has so far made it impossible for the Commission to arrive at any riper result than that which the interim report shows. This particular form of reference requires the Commissioners to inquire and to report "if more than one method may be so adopted, by what rules, in relation to the nature or volume of sewage, or the population to be served, or other varying circumstances or requirements, should the particular method of treatment and disposal to be adopted be determined." In order to supply a complete and definite answer to this somewhat comprehensive request nothing short of a technical research was involved. The Commissioners admit as much, and no one knowing anything at all of the intricacy of the problem could expect them at this stage to pretend that in the time so far allotted to them they had the smallest chance of coming to a satisfactory conclusion. They have found it necessary to institute a number of scientific investigations which have been entrusted to Professor BOYCE and Dr. A. C. HOUSTON, representing the bacteriological side, Dr. MCGOWAN and Mr. COLIN FRYE, representing the chemical side, and Mr. G. B. KERSHAW, representing the not least important aspect of the question, the engineering side. We think that already a distinct impression has been made upon the Commissioners in favour of the treatment of sewage by bacteriological methods. Indeed, if we are not mistaken, we read a conviction in their minds that the bacteriological method at any rate is effectual in breaking down offensive matters into innocuous products when attention is paid to the requirements of the specific micro-scavenger concerned, but that at present they have no sure and certain evidence that pathogenic bacteria do not survive the process. This is very much in a line with the valuable observations of Dr. HOUSTON in connexion with the London County Council experiments at Barking and Crossness on coke-bed filtration. The subject requires careful extended investigation.

But this interim report is not a series of negatives by any means; it contains valuable conclusions. Thus the Commissioners doubt whether any land is useless for the purification of sewage, though in the case of stiff clay and peat lands the power to purify sewage seems to depend on the depth of the top soil. This description of land, however, is pretty certain to offer difficulties if not to render land treatment impracticable. Next the Commissioners are satisfied that it is practicable to produce by artificial processes alone, either from sewage or from certain mixtures of sewage and trade refuse (not even omitting the cases of Leeds and Manchester) effluents which will not putrefy, which would be classed as good according to ordinary chemical standards, and which might be discharged into a stream without fear of creating a nuisance. In view of this conclusion the Commissioners are led to recommend that the present rule of the Local Government Board should be relaxed under proper safeguards and that in some cases the application of treated sewage to lands might be omitted. We have expressed the opinion that such treatment is often not only superfluous but prejudicial. The Local Government Board rule was promulgated at a time when the efficiency of bacteriological treatment was not realised. The adoption of the new recommendation of the Commissioners will remove what has proved to be a source of embarrassment to processes of treating sewage by bacterial agencies which are known to be of certain efficiency. It will further augment the economy of all such processes. It may be noticed that the Commissioners employ the term "artificial processes" as applied to the purification of sewage by bacteria. We confess to being nonplussed by the employment of the word "artificial" in this connexion. Surely, nothing is more natural than that the functions of bacteria should be induced to begin, to continue, and to end the work of purification of human excreta. Is not the teaching of the great natural processes convincing that to micro-organisms is relegated the work of breaking down complex offensive matters into simple and not only harmless but positively beneficial products? Why, then, is the cultivation of bacteria for this purpose regarded as an "artificial process"? We can quite understand chemical treatment, on the other hand, being regarded as such.

A most important clause occurs in the third conclusion of the report. The Commissioners express the opinion that the general protection of our rivers is a matter of such grave concern as to demand the creation of a separate commission, or a new department of the Local Government Board, which shall be a supreme "rivers authority," dealing with matters relating to rivers and their purification, and which, when appeal is made to it, shall have power to take action in cases where the local authorities have failed to do so. We cordially agree that some such authority as is here suggested should be appointed for the express control of the purification of rivers, but, assuming that we interpret the recommendation accurately, we cannot see the necessity for the creation of a separate

commission to decide this matter. The present Royal Commission is so well composed that the Government would be well advised, in our opinion, to add at this stage a fresh term of reference for the consideration of this Commission, to the effect that the Commissioners should be required to make, as they are highly qualified to do, a definite and practical recommendation on the question. It is, after all, but an extension or sequel of the subject with which they have been asked immediately and in the first instance to deal.

Home Nursing in Chronic Cases.

IT is proposed that the women's memorial to QUEEN VICTORIA should take the form of a national subscription on behalf of Queen Victoria's Jubilee Institute for Nurses, founded by Her late Majesty in 1887 with the money of the women's offering of that year. There is much to be said in favour of such a scheme. The beds of many of our hospitals are crowded with cases which could be treated with equal benefit in their own homes, and large numbers of patients, who would gain immensely in hospital, are kept waiting for admission for an indefinite time, perhaps until it is too late for relief. Neither the public nor hospital officials seem quite to appreciate the fact that a general hospital is not a home of rest, but a place where active therapeutic measures can be taken with a chance of success.

Cases of anæmia are found in hospital wards with unnecessary frequency. Many sufferers from dermatitis are best treated at their own homes, particularly those who present varieties of disease where pus organisms, or some special forms of organisms, are adding to, or are entirely answerable for, their state. Those forms of eczema which require rest in bed can be treated in any clean environment. Given fair sanitary surroundings cases of carbuncle or boil can be well treated outside, and are certainly not wanted inside, a crowded building. Ulcers of the leg need seldom be treated in a hospital, nor in these days of improved treatment should they be allowed to be neglected. Firm believers in the oxygen treatment of ulcers of the leg would argue for their admission into a hospital ward, but it has still to be proved that this method of treatment has much quicker or more permanent results than have many other less expensive methods. In cases of malignant disease of the womb or of the breast, and indeed, also, of other organs unsuitable for operation, the patients are often left to die in a pitiable condition. Here the services of a nurse are invaluable at the patient's home, while hospital treatment is too often quite useless. Patients suffering from pneumonia or bronchitis complicating measles cannot readily be allowed admission into a hospital on account of the general infectiousness of the zymotic complaint, but theirs are pre-eminently casesrequiring such skilled nursing as they can get. Again, the sequelæ of scarlet fever, such as rheumatism, albuminuria, and otitis, lend themselves readily to assistance at the hands of a visiting nurse. In such instances she is helping to dispel the prolonged after-mischief which would render the sufferer a more or less useless member of society and a constant anxiety to his friends. Paralytic cases of long standing and incurable cases of injury are very ready to fall into a slough of despondency. Many of these patients still cling to life. Hospital finances will not stand the strain of maintaining them and it is often cruel to send them into the workhouse. Some gentle encouragement and a little skill on the part of a nurse, proffered at the patient's own home, will undoubtedly mitigate the severity of the symptoms and cheer up these miserable sufferers.

Lastly, if a special nurse can be told off for the duty, cases of ordinary zymotic disease can be fairly well looked after in the homes of the poor, where the medical officer of health can be satisfied as to proper isolation. It is often impossible to get such cases admitted into special hospitals, but where a spread of infection can be avoided home treatment will generally suffice. The good done by the Queen's nurses is of a kind apart from that done by the hospital. They assist hospital finance, they save much unnecessary hospital labour. They do a special work for humanity in that the bulk of the suffering creatures whom they relieve are not suitable hospital inmates and are also unfit for, or are very undesirous of going into, the workhouse infirmaries. It is to be hoped, therefore, that the attempt to raise a national subscription will be met by a hearty response from the women of Great Britain. Certainly it would not be possible to think of any more suitable way of honouring the name and memory of our late great Queen than by assisting the funds of the Jubilee Institute for Nurses. The ministrations of the Jubilee nurses make for the preservation of exactly that sanctity and privacy of family life which QUEEN VICTORIA was known to prize so highly.

Indian Ophthalmic Practice.

A VERY interesting number of the *Indian Medical Gazette* has recently been published under the title of "Special Ophthalmic Number," giving the experience of surgeons in various parts of India in the treatment of diseases of the eye, and particularly in regard to the operations for cataract. The prevalence of this affection amongst the natives of India may be in some measure estimated from the fact that in 1896 Lieutenant-Colonel T. H. POPE, I.M.S., the superintendent of the Ophthalmic Hospital, Madras, had operated on 4000 cases, and that since that date he has operated upon upwards of 3000 more. Again, Major H. HERBERT, I.M.S., the ophthalmic surgeon in charge of the Ophthalmic Hospital, Bombay, has performed during the last five years 578 extractions; Major F. P. MAYNARD, I.M.S., civil surgeon of Patna, has done 300 extractions; at the Mayo Hospital, Jaipur, during the years 1891-1900, Colonel T. H. HENDLEY, I.M.S., C.I.E., and Lieutenant-Colonel P. DURRELL PANE, I.M.S., performed no less than 5310 extractions, including 304 by Assistant Surgeon DA GANG SINGH, and 98 by various other operators; Captain HENRY SMITH, I.M.S., civil surgeon of Jullunder, Punjab, records 1804 cataract operations performed in 10 years and in the last 11 months 1650 more; Dr. ERNEST NEVE has done 936 in 20 years, of which 725 were performed during the last 11 years; Major C. R. M. GREEN, I.M.S., at Mozufferpur, has had a total of 425

operations; Major J. MORWOOD, I.M.S., has had 1523 operations for cataract; Mr. CHARLES MACNAMARA, F.R.C.S., I.M.S., had had 350 cases of linear extraction, but this was antecedent to 1867; Brigade-Surgeon E. F. DRAKE-BROCKMAN, F.R.C.S., I.M.S., shortly after that date tabulated 3393 cases; and Dr. W. J. WANLESS, in charge of the American Presbyterian Mission Hospital, Miraj, Western India, has had 495 operations.

Thus it appears that this small number of surgeons in the course of a very few years operated upon nearly 25,000 cases of cataract. European statistics of 100 and 200 cases, which leading ophthalmic surgeons regard as a large number, pale beside these immense numbers. What is still more remarkable is that the results are excellent. Lieutenant-Colonel POPE remarks apologetically that it often happens in the Madras Hospital that a run of 300 successful cases occurs, which seems extraordinary, but that immediately following this four or five cases fail either from suppuration or severe irido-cyclitis or from some unknown cause, and so the average success at once falls. There are few European surgeons who would not be well content to point to a register of 300 consecutive successful cases. The accounts of the methods adopted given by each of the operators mentioned above are full of interest. Lieutenant-Colonel POPE uses atropine before operating to determine the relations of the iris to the underlying lens. He sterilises both the conjunctival sac and the instruments. He divides the capsule with a needle and then performs an extraction without an iridectomy, the incision being a large one, considerably exceeding the three-millimetre incision of VON GRAEFE. A conjunctival flap is always made, as a result of which he finds prolapse of the iris almost a thing of the past. A pad and bandage are kept on for a day or two. Exposure of the eye to the air he thinks a distinct advance in the hygienic treatment of the wound. If conjunctival catarrh follows the operation he cleanses the eye with saturated boric acid solution and then applies a solution of nitrate of silver of the strength of three grains to the ounce of distilled water. If suppurative keratitis supervene he employs atropine in addition to the above remedies, and if irido-cyclitis remain he recommends excision, fearing sympathetic inflammation of the opposite eye.

The practice in India seems to be to extract without iridectomy. Thus Lieutenant-Colonel J. T. LEWTAS, I.M.S., Professor of Ophthalmology, Medical College, Calcutta, states that of 147 operations iridectomy was done in 33, and then only because some object was to be fulfilled by it. Lieutenant-Colonel LEWTAS uses a moist aseptic pad for three or four days. Major HERBERT recommends the cleansing of the conjunctival sac before operating with a solution (1 in 3000) of corrosive sublimate. Both he and Major MAYNARD frequently operate without iridectomy. Captain HENRY SMITH in the immense majority of his cases operates without iridectomy but extracts the lens in the capsule, and his results in a total of 1650 cases are excellent. The same practice is pursued by Dr. WANLESS who sharpens his own knives. Lieutenant-Colonel POPE, who has given up this method after trying it for some time, thinks that there must be something different in the size, formation, and firmness of structure of the eyes of the natives of the north of India as compared with those of the south, because he finds insuperable difficulty in making the lens start from its position, whilst on firm pressure being applied the vitreous humour escapes. Captain HENRY SMITH'S paper deserves careful perusal.

We congratulate our contemporary upon having collected such an extremely interesting and valuable series of articles from leading Indian surgeons. They will be read with the greatest interest in this country, and although some differences probably exist between the eyes of the native of India and those of the European, yet there are many lessons to be learnt from these very able and personal memoirs in regard to the particular methods of operating that have been found most successful, as well as the preliminary and after-treatment that should be adopted. The medical profession at home is always gratified to read of, and to learn from, the experiences of colleagues abroad; and we make no doubt that as Greater Britain, under a more enlightened comprehension of the real significance of a civilised empire, becomes more closely knit together into an entity, these interchanges of scientific information will become more frequent.

Annotations.

"Ne quid nimis."

THE DEATH OF THE EMPRESS FREDERICK.

THE struggle against the inevitable so long and so bravely carried on by the eldest daughter of Queen Victoria is over and the Empress Frederick is dead. It has been an open secret for at least a twelvemonth that the Imperial patient was suffering from malignant disease, but it had always been her desire that her condition should not be discussed. She shrank from sympathy and faced her position in courageous silence. When it was seen that she was too ill at the beginning of the year to take her place with her brothers and sisters at the bedside of her dying mother it was felt by everyone that the end could not be far distant, and now it has come. By the mercy of Providence the closing scene was peaceful and the death-bed painless.

THE FEES OF MEDICAL WITNESSES.

ON Monday last, Mr. W. F. Lawrence, one of the Members for Liverpool, raised in the House of Commons, on the Home Office vote, the question of the fees paid to medical witnesses. In a well-informed and temperate speech he pointed out that the scale of fees at present received by the medical profession, as laid down by an old Act of Parliament, was in these days completely inadequate. Mr. Ritchie, following the suit of a late distinguished Home Secretary, Mr. Asquith, allowed that the fees granted to medical witnesses in England were not generous and compared unfavourably with those granted in Scotland, but, like Mr. Asquith, he could not entertain the question of revision because to do so would lead to the consideration of the whole scale of fees paid to all classes of professional witnesses. There was once a young nobleman in a popular farce who used to say on all occasions to everyone who addressed him, "What rot," and we feel strongly tempted to say so to Mr. Ritchie. Medical witnesses are much more required in courts of justice than any other professional witnesses and their duties are not similar. There need be no delay in considering their case apart if the Home Office would make up its mind to take the trouble. Of course, someone would have to do a little work and this, no doubt, is a formidable thing for a Minister to contemplate, but our

point is that the work need not be magnified into an impossibility and then neglected. The fees of medical witnesses should be revised.

THE FILTERS SUPPLIED TO THE TROOPS IN SOUTH AFRICA.

CONSIDERABLE discussion is taking place in public health circles as to the merits of the filters supplied to the troops in the South African campaign. It is stated that the filters decided upon by the War Office showed a lower efficiency than the existing standard and that they were permeable to the typhoid bacillus. If this be so it is evident, considering the enteric fever from which many of our soldiers suffered, that they were given a false sense of security in regard to this matter. These allegations, it seems to us, should be thoroughly sifted, and yet another explanation of the action of the War Office is called for. The probability is that no portable filter can be regarded as secure in the excessively trying conditions under which our troops conducted the campaign. It was difficult enough to find water to drink, and how under such circumstances could the filters be periodically cleansed and sterilised? The evidence of laboratory experiments is worth very little in such a case and some method of purification of water other than filtration, such as sterilisation by the addition of sodium bisulphate, seems indicated. We trust, however, that the matter will be duly investigated.

FATAL INTESTINAL HÆMORRHAGE IN BRIGHT'S DISEASE.

AT the meeting of the Société Médicale des Hôpitaux of Paris on June 28th Dr. M. A. Souques related the following case. A man, aged 58 years, was admitted to hospital with albuminuria which he appeared to have had for five years. Some months previously his urine was examined and contained 0·3 centigramme of albumin to the litre. He looked strong, but his legs were œdematous and his abdomen was swollen and a little painful and tender. The heart was hypertrophied, the pulse was 120 and small, and the temperature was 101° F. In the chest there were sonorous and sibilant râles. There were diarrhœa and albuminuria. Bright's disease with slight uræmia was diagnosed and milk and dry-cupping were prescribed. Though the patient was apparently in a good condition he died on the following morning. There had been vomiting during the night and some diarrhœa and slight delirium. The necropsy showed that death was due to intestinal hæmorrhage. The ileum was uniformly blackish for an extent of one and a half metres. In this part it was filled with black fluid and the mucous membrane was hæmorrhagic and livid. All the intestinal coats were tinged with blood, and even a small quantity of ascitic fluid which was present was reddened. The most careful examination of the mucous membrane of the affected part did not reveal any ulceration. The stomach and the rest of the intestines were normal. There was no venous thrombosis. The kidneys were large and each weighed 250 grammes. The section had the appearance of large white kidney. The capsules were adherent in places. The lungs were œdematous and congested. The heart had the typical aspect of *cor bovinum*; the left ventricle was greatly hypertrophied. In this case death resulted from an intestinal hæmorrhage which had not had time to show itself externally. Intestinal hæmorrhage in Bright's disease is now well recognised, but writers simply mention it without entering into details. Cases such as the present have been rarely recorded. Rayer[1] has described the following one. A man, aged 48 years, succumbed to a second attack of nephritis with melæna. The necropsy showed signs of pleurisy and hæmorrhagic peritonitis. In the peritoneum were several litres of red serous fluid. The ileum and large intestine were black; on the mucous membrane were fibrinous clots. The intestinal contents were blackish and liquid. Treitz, who has specially studied the gastro-intestinal troubles of nephritis, has found intestinal lesions in 209 out of 220 cases of uræmia. In 27 cases there was "dysentery," croupous or ulcerative; in four there were effusions of blood into the intestine. Auvert has described a case of Bright's disease with Cheyne-Stokes respiration in which repeated and abundant intestinal hæmorrhages took place for a week.[2] Intestinal hæmorrhage in Bright's disease is of two clinical types. In one, the most frequent, there is intestinal ulceration; in the other there is simply hæmorrhage, more or less abundant, which may show itself externally or not. Hæmorrhage without ulceration can be explained by intestinal congestion and rupture of capillaries. As to the mechanism, it has been shown that toxins, for example the diphtheritic, will cause intestinal hæmorrhage in animals. No doubt during their elimination by the intestine they produce congestion. In uræmia toxic substances are eliminated by the intestine, possibly with the same result.

[1] Traité des Maladies des Reins, tome ii., p. 335.

THE CRIPPLES' MISSION.

THERE are several societies the objects of which are to provide the children who live in the slums and poorer neighbourhoods of London with an annual holiday, but poor crippled children, of whom we believe there are about 6300 in our vast metropolis, are unable by reason of their deformities to join in the holidays and treats which are provided for them by people who possess both money and kind hearts. The Cripples' Mission, which is a development of the Ragged School Union and Shaftesbury Society, sends every week from 50 to 100 helpless boys and girls to the seaside for a stay of two or more weeks. Other parties of equal number are conveyed for the day to Epping Forest or to one of the parks. In connexion with this mission we are glad to see that a new holiday home for cripples was recently opened at Margate, Gordon House, the old home of the Young Men's Christian Association, having been renovated at a cost of £400. It possesses accommodation for 30 beds. The offices of the Cripples' Mission are at 32, John-street, London, W.C. The society looks after the children until they are of the age of 16 years.

THE RAPID DETECTION OF BORIC ACID IN MILK.

THE usual methods employed for the detection of boric acid in milk (the turmeric test and the alcohol and glycerol flame tests) in order to be delicate require a preliminary evaporation and incineration. Though this presents no difficulty in the laboratory, it renders the tests somewhat impracticable in the many cases where it may be desirable to make a test on the spot. Mr. Droop Richmond, F.I.C., points out that there is a reaction peculiar to boric acid which may be employed as a test; in aqueous solution boric acid hydrolyses almost completely into B_2O_3 and H_2O, and is therefore hardly acid to phenolphthalein, which he has proved by cryoscopic determinations of the molecular weight in aqueous solution. Re-combination is effected by the addition to the solution of polyhydric alcohols. Thus, as R. T. Thompson was the first to point out, boric acid could be titrated with phenolphthalein in a 30 per cent. glycerol solution, showing that it is completely re-combined. No other acid possesses this property. Milk sugar behaves as a polyhydric alcohol and a 4 to 5 per cent. solution causes combination to the extent of about two-thirds. This

[2] Thèse de Paris, 1879.

peculiar behaviour of boric acid may be taken advantage of to test for its presence in milk. A portion of milk, say from 10 to 20 cubic centimetres, is placed in a beaker or other vessel, a drop or two of phenolphthalein solution added, and caustic soda solution (about normal strength) dropped in cautiously till a faint pink colour appears; a little of the milk is poured into two test-tubes, to one an equal bulk of a neutral 50 per cent. glycerol solution is added, and to the other an equal bulk of distilled water. If the milk be free from boric acid no difference of colour between the two tubes is noticed; in the presence of boric acid the glycerol tube will become paler, or usually white, while the water tube will become distinctly pinker. Any difference in colour between the two tubes (except the faint difference due to the greater transparency of the mixture of milk and glycerol) indicates the presence of boric acid. The neutral glycerol solution is prepared by mixing equal volumes of glycerol and water, adding a few drops of phenolphthalein and dropping in caustic soda solution till a very faint pink colour appears.

THE PROPER HOLIDAY.

AT a time when the subject uppermost in the minds of men who work is their holiday we naturally pause to reflect how that interval of freedom is generally spent, and whether it is always of as great benefit as it should be. It is a very common thing for people to return from their holiday in worse health than when they left. This is deplorable and should seldom occur. The reason for such an unfortunate and entirely unintended sequel to a period of recreation is sometimes easy to find. Enchanted and blinded, perhaps, by the delights of some sequestered house, long solitary and little used, in the heart of a rural district, the weary holiday-maker from town ignores the evils of an antiquated sanitary arrangement, and while feasting his eyes on the charms of fruit trees and ivy-covered walls inhales the poison of a septic throat, or returns home to find his children fall ill with diphtheria reaped at that charming country resort. Let the man, then, who seeks the quiet of unfrequented country places as a main feature of his holiday at any rate take care that hygiene has not been sacrificed to antiquity. It is possible to find houses that are both interesting and old although the drainage is new and effective. In the matter of drainage we may well prefer a modernity which we avoid in the other features of our holiday house. It is a wise step for those who work in the bustle and clatter of a large town thus to rusticate themselves in their time of recreation. One of the most essential features, in fact, of a holiday is that it should be a change. A recognition of this fact leads the medical practitioner of the country to take his holiday in a manner very different from that which appeals to his city brother. We know such a gentleman, busy day after day in his trap, his motor-car, or on his bicycle over a wide agricultural district, who finds one of the charms of his holiday in travelling about London on the underground railway. It is a form of entertainment rarely sought after from motives of pure enjoyment. Yet we are sure our country friend is quite right in his argument and the success of his method is proved by the renewed vigour and interest with which he returns home. He has had a change. Those whose lives are sedentary should exercise themselves when on their holiday, while he who is always running about when at work will do well to lie on his back on the soft meadow or, pillowed by the shelving beach, listen to the lazy lapping of the waves. We have no approval for the historic omnibus driver who when he had a "day off" spent it beside the comrade driving another 'bus. It is a trite enough observation that a holiday should be a change, yet it is one very often disregarded. Men become so moulded into the habits which they form that, though conscious of the advantage of a temporary cessation of their usual activities, they do not make the effort to secure it. The hard reader takes his books with him, the man who is always on his legs goes away and climbs, few seek as recreation the opposite of their usual occupation, and many a holiday longed for as the opportunity for renewing health and vigour turns out a disappointment because the time was not spent with that alteration of interest that should be the feature of all real leisure

UNIFORM MEDICAL LEGISLATION IN AMERICA.

DR. EMIL AMBERG, of Detroit, Michigan, has sent us an article condemnatory of the system, according to which, in America, "many States absolutely refuse, within their jurisdiction, the license to practise to the same physicians whom citizens of other States legally authorise to exercise their professional duties, and to whom they intrust their own lives and those of their families." This fact, he says, can be explained in only two ways. Either the standing of those physicians is not sufficiently high for the former States, or the former States intend to protect their "home industry." He also considers that it would be a wise step to close about three-fourths of the medical schools now existing and either to place the rest under rigid State control or to make them State institutions.

THE ARMY MEDICAL SERVICE.

IN April of this year a sub-committee of the Parliamentary Bills Committee of the British Medical Association issued a report on, and recommendations for, the reorganisation of the Army Medical Service. This report was adopted by the Council of the Association and a copy was forwarded to the War Office. Some addenda were appended to the report concerning the proposed amalgamation of the British with the Indian Medical Service, and in the last paragraph of these addenda it was stated that the sub-committee were "of opinion, in order that our British and Indian soldiers may in time of peace and of war be kept in the best possible physical condition—that is, in health and fitness to perform their duty—it is necessary that they should be under the care of a single medical service, with one portal of admission." Without at present entering upon the debateable question as to whether or not it is desirable that the two services should be amalgamated, we understand that, so far as is known, there is no intention on the part of either the home Government or the Government of India to amalgamate the two services; nor would any such scheme be considered.

THE ANNUAL REPORT OF THE COMMISSIONERS IN LUNACY.

THE report of the Commissioners in Lunacy for the year 1900 has been issued in the form of a Blue-book. The total number of lunatics under the notice of the Commissioners on Jan. 1st, 1901, was 107,944. This was an increase of 1333 for the year 1900, as against an increase of 1525 in 1899 and of 3114 in 1898. The average annual increase for the last five years has been 2300, so the increase for 1900 is by no means large. The numbers of patients in county and borough asylums, registered hospitals, Broadmoor Criminal Lunatic Asylum, and of single patients have increased, while those in licensed houses, naval and military hospitals, metropolitan district asylums, and workhouses have decreased. The Commissioners point out that as regards asylums they have noticed extravagance in sundry details, and they further say that when plans are submitted to them in which any departure appears from the principles of due economy, proper regard being had to adequacy of buildings

and a sufficiency of decoration, they shall regard it as their duty to advise the Secretary of State to refuse his approval of the plans. We are glad to see that there is a decrease in the number of lunatics in workhouses. The workhouse as at present constituted is quite unfit for the reception of lunatics. The Commissioners, we are glad to see, suggest a differentiation of asylums. The inexpensive and more simply fitted are to be used only for the infirm, while the more adequately equipped hospitals are to be used for the more acute cases.

THE USE OF CATS' AND DOGS' MEAT FOR SAUSAGES.

RAILWAY arches have doubtless been put to multitudinous uses from time to time and more particularly in the neighbourhood of London where they may be seen serving the purpose of a stable or a church. The sanitary inspector of Bethnal Green has, however, been devoting his attention to the operations beneath an archway in that part of London. About a year ago certain persons were prosecuted and heavily fined for selling and using for human food material purchased from a cats' and dogs' meat dealer, the lessee of a railway arch, and somewhat similar mysteries have again been enacted in the same neighbourhood, but outside the district of Bethnal Green. It appeared for a long time that the cats' meat trade had ceased, but by means of a midnight vigil the sanitary inspector ascertained that the cats' meat was removed surreptitiously to a small private house from which it was fetched by makers of sausages. After considerable trouble a butcher in Hackney was followed home with a consignment of this material which on arrival at the butcher's premises was seized and condemned. We are glad to hear that further legal proceedings are impending. The inspector is of opinion that an enormous amount of this objectionable substance, highly seasoned with condiments, and, perhaps, we would add, temptingly coloured, is dealt with, and that regular markets exist for the trade. Unfortunately the trade is carried on in several districts, and hence there is need for the officers of some central authority, such as the London County Council, to take the matter up. Sausage factories need much watching in this country, and sausages introduced from abroad need more analysis than, we fear, they get at present. What is required is the right of entry into all places in which food or substances used for the preparation of food are made ready for the market. Such a procedure is better than much analysis.

THE SEXUAL SENSE IN GENERAL PARALYTICS.

LITTLE has been known hitherto regarding the variations of the sexual feeling in general paralysis of the insane. In the *Archives de Neurologie* for July Dr. Marandon de Montyel describes the exact clinical conditions in the three stages of general paralysis, and draws certain new and interesting conclusions. The total number of patients whose cases were investigated was 1037, of whom 727 were of the "expansive" type, 162 of the "depressed" type, and 148 of the mixed type, as regards psychical symptoms. The following table gives the conditions of the sexual sense, whether normal, heightened, or lowered, in the three types of cases :—

Clinical type.	Normal sexual sense. Per cent.	Heightened sexual sense. Per cent.	Lowered sexual sense. Per cent.
a. Expansive	11·5	18·2	70·3
b. Depressed	0·0	0·0	100·0
c. Mixed...	4·7	19·6	75·7

The most characteristic feature is that every one of the 162 patients of the depressed clinical type showed a lowered activity of the sexual instinct, while even in the expansive type of patients 70 per cent. showed the same. "It is not then true to pretend," says Dr. Marandon de Montyel, "that the self-satisfaction of general paralytics and their delusions of physical strength are engendered by a genital superactivity." Investigation was also made as regards sensibility to pain and it was found that this sense was more often altered than the tactile sensibility of the genital organs. From a detailed examination and tabulation of cases, however, no connexion could be established between alteration of the algesic sense (cutaneous sensibility to pain) and impotence. The general paralytic may, and often does, brag of his virile power while impotent. It was also found that as regards etiology the operation of alcohol was that which caused most of the alterations of the genital sense. These genital alterations had no prognostic value, but if they appeared early—that is, in the prodromal stages of the disease—they might have a distinct diagnostic value.

THE BRITISH DENTAL ASSOCIATION.

AT the annual general meeting of the British Dental Association which was opened on August 3rd some interesting points were raised. The honorary secretary, Mr. W. B. Paterson, in his annual report mentioned that the efforts of the Association in regard to the care of the teeth of sailors and soldiers had been met by the naval authorities by the purchase of "dental outfits" for naval surgeons. No doubt, continued the report, the outfits are suitable for the purpose for which they are intended, but then a box of tools does not necessarily make a workman. The army authorities, however, had recognised the necessity for dental aid for troops on active service and had applied to the Association to supply four dental surgeons to go out to South Africa for the purpose of attending on the troops. Mr. S. J. Hutchinson, the President of the Association, referred in his presidential address to the good work of the School Dentists' Society and remarked that it was greatly to be regretted that the School Board for London had not availed itself of such opportunities as it might have done for the proper supervision of the teeth of children under its care. He referred with satisfaction to the fact of there being four dental surgeons at the seat of war and expressed a hope that in future a dental department would be seen working in unison with the Royal Army Medical Corps. The annual dinner of the Association was held in the evening, and among the guests were Mr. H. G. Howse, the President of the Royal College of Surgeons of England, Dr. C. Godon, President of the École Dentaire, Paris, and Sir James Crichton Browne.

HÆMORRHAGE IN CHRONIC JAUNDICE.

IN *American Medicine* of April 27th Professor Osler calls attention to the frequency and seriousness of hæmorrhage in chronic jaundice. In the past few months he had observed five cases in the Johns Hopkins Hospital. In Case 1 a woman was admitted on Jan. 9th with jaundice of four months' duration. There were recurring attacks of pain. The blood coagulation time was 10 minutes. An exploratory operation was performed on Jan. 29th and carcinoma of the gall-bladder and liver was found. Profuse hæmorrhage took place on the night following the operation and continued until death which took place on Feb. 1st. In Case 2 a woman was admitted on Jan. 30th with jaundice of four months' duration and intermittent fever. She had multiple xanthoma. The blood coagulation time was eight minutes, but under calcium chloride it was reduced to three and a quarter minutes. On March 5th numerous gall-stones were removed from the gall-bladder and common bile-duct. Hæmorrhage took place on the following day and a hæmatoma formed. On March 9th there were severe bleeding and collapse. Recovery gradually took place. In Case 3 a woman was admitted on Feb. 19th with jaundice of nearly 10 years' duration. She had had attacks of hæmorrhage, chiefly from the nose and

the uterus, in two of which she nearly died. An attack was in progress and she was pulseless and blanched. The hæmoglobin was 20 per cent of the normal and the red blood corpuscles were 1,600,000 per cubic millimetre. She had multiple xanthoma. The coagulation time was 14 minutes. A month later it was four and a half minutes and the red corpuscles had risen to 4,000,000 per cubic millimetre. On March 22nd there were slight epistaxis and a few petechiæ. In consequence of the tendency to hæmorrhage, even when the coagulation time was four minutes, and her extraordinary tolerance of the jaundice, operation was not advised. Case 4 was that of a stout, healthy-looking woman who was admitted on Feb. 19th with pain, nausea, vomiting, and jaundice of four weeks' duration. The coagulation time was three and one-third minutes. Operation was proposed, but she became collapsed, had hæmatemesis, and died. The necropsy showed gall-stones, cancer of the gall-bladder, extensive hæmorrhage into the lesser peritoneum, and hæmorrhage into the stomach. In Case 5 a man who had jaundice of four years' duration was operated on. On attempting to separate adhesions about the bile-ducts he bled so profusely that the operation had to be abandoned. Professor Osler points out the importance of surgeons taking into account the tendency to bleeding in chronic jaundice. Calcium chloride in 20-grain doses thrice daily, as suggested by Professor Wright of Netley, decreases the blood coagulation time, and subcutaneous injections of gelatine may be used for the same purpose. But, as shown above, bleeding may occur when the coagulation time is normal.

THE DEGRADATION OF FOOD.

THERE can be no doubt that during the past decade food has undergone a steady degradation, and this cannot be without a demoralising influence upon the human race. It will be noticed that by far the majority of cases of tampering with food relate to the substitution of a cheaper article rather than to the addition of an injurious substance. The common defence is that modern conditions of life make substitution a necessity. It is difficult to see the logic of such a defence—at least, in a number of instances. It is urged, for instance, that jam or marmalade cannot be made without the addition of glucose which prevents the preserve from crystallising. Now long before glucose was a household word jams and marmalade were made—and very good they were, too—consisting entirely of sugar and fruit. In the same way we are told that beer must be brewed from sugar and that brewing exclusively from malt presents untold difficulties. Again, golden syrup, which used formerly to be the refined syrup of molasses, consists largely now of artificial sugar, which is doubtless a more marketable product but is not the same thing as cane sugar. Yet, again, we are told that the public demand a perfectly white loaf of bread, the truth in reality being that machinery has produced a roller flour which is an inferior thing to the now, we suppose, extinct stone-milled flour. Instances of this sort could be multiplied. We could wish that all those keeping house would make up their minds seriously to return to the excellent custom of preparing many articles of food for themselves at home. Who does not admit the charm of home-made bread, home-brewed beer, or home-made jam, and simply because they are known to be made from an honest formula which has stood the test of time and from good materials which yield a palatable product? Even in the country good old-fashioned wheaten bread, with that fascinating brown colour of rich wheaten flour, containing the entire nutritious portions of the berry and possessing that delightful wheaten flavour, now seldom, if ever, characteristic of bread, is difficult to obtain. The baker's loaf is, as a rule, a tasteless, insipid article which requires a considerable appetite before the idea of eating it can be entertained. No wonder that the taste for bread is steadily diminishing, and undoubtedly less bread is consumed than used to be the case. As is well known, bread contains almost every element of food necessary for existence, but we should be sorry for the person who tried to subsist entirely upon the modern uninteresting loaf made from blanched roller mill flour. It has recently been stated that the degradation of the teeth so noticeable amongst us now is due to roller milling having largely supplanted stone milling. We should not be surprised. The degradation of food is a very serious matter and is bound to lead sooner or later to the degradation of the eater. No movement could confer greater blessing upon the people than that which aimed at bringing about a return to the older and more rational methods of preparing food. Let us see more of the home-made article than we now see; let us return to more palatable food and to food that will do more good than the machine-made stuffs and the endless series of substitutes. In all the schools throughout the land we would have the children taught the advantages of home-made food, and how that bread, fruit, jam, or even beer and cider can be made at home. It would encourage a spirit of industry, it would give us palatable and nourishing articles to eat or drink, and might have a very wholesome effect upon those who seem deliberately to attenuate food as much as possible or who pay no regard to its naturally endowed palatability.

THE very sudden death is announced, on August 2nd, of Dr. Julius St. Thomas Clarke of Leicester. It will be remembered that in October of last year Dr. Clarke was seriously assaulted by a maniac named Kirby who fired four shots from a revolver at him as he was walking in the street. Dr. Clarke was wounded in the lower part of the spine and lay in a critical state for some time, but eventually recovered, and by November was well enough to give evidence against his assailant before the magistrate, as we mentioned in THE LANCET of Nov. 10th, 1900, p. 1382.

AT a meeting of the Distribution Committee of the Metropolitan Hospital Sunday Fund, held on July 31st under the presidency of the Lord Mayor, two amounts of £706 13*s.* 4*d.* and £706 6*s.* 8*d.* for last year and this year respectively were ordered to be paid over to the National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, W.C. These two amounts had been held over pending the settlement of the recent disputes between the board of management and the medical staff.

DURING the week ending July 28th seven cases of plague and three deaths from the disease were reported from all Egypt; of these, four cases and three deaths occurred among natives and three cases among Europeans of Greek nationality. Four cases and one death were reported from Alexandria, two cases and one death from Zagazig, and one case and one death from Port Said.

IN the *Times* of Wednesday last appeared a long and vehement letter from Mr. Burdett-Coutts, in which he appears to be exceedingly angry with Sir W. Mac Cormac for having, as it was reported, said that "Mr. Burdett-Coutts had no idea of perspective and exaggerated everything." We understand that Sir W. Mac Cormac did not mention Mr. Burdett-Coutts's name.

HIS MAJESTY the KING has been graciously pleased to grant his patronage to the Dental Hospital of London which has recently been rebuilt in Leicester-square, London.

ASYLUM REPORTS.

Salop and Montgomery Asylum (Annual Report for 1900).—The average number of patients resident during the year was 787 and comprised 344 males and 443 females. During the year 213 patients were admitted and of these 49 were not first admissions. The latter does not include 11 patients who were received as transfers from other asylums. Dr. Arthur Strange, the medical superintendent, states in his report that from the nature of the admissions and the number of old people in the asylum the recoveries during the year were lower and the deaths were higher than the average. A falling-off in the number of curable cases among the admissions has been steadily going on for some years. The question of increased accommodation for patients is getting urgent, and owing to delay and uncertainty in matters jointly concerning the counties of Salop and Montgomery no progress has been made. The asylum has suffered severely from an epidemic of colitis, to which seven inmates, all males, have succumbed. Dr. Strange believes that "while being unable to trace the origin of the disease there can be no doubt that it is infectious and that isolation and cleanliness are the best and perhaps only means of arresting its spread. The appearance of this disease [colitis] in two successive years, and the occurrence of so many cases of phthisis as evidenced by the number of deaths from that affection year by year point ..... to the need of wards where these and other similar cases can be treated separately. This is simply impossible in the present building, which is generally overcrowded with acute cases." Five cases of fractured bones occurred during the year, one being a case of fractured ribs attended with a fatal result. An inquest was held and a verdict of "accidental death" was returned. Dr. Strange regrets to have to report too numerous changes amongst the staff due to various causes. He believes that a spirit of unrest pervades the class from which attendants are taken, especially the females. "Many girls engage as nurses and give up after a short time without giving the kind of life a fair trial. I also doubt whether the class of candidates is quite up to the level of former years. One evidence of this is the number of dismissals; no less than eight, males and females, left in this manner, and four others (including one female) left without giving any notice." The deaths during the year amounted to 116, the highest number ever recorded in the asylum—viz., 58 males and 58 females, or 14·7 per cent. of the average number resident. Of the deaths two were due to cancer, three each to influenza, bulbar paralysis, and general paralysis, six to apoplexy, seven to colitis, nine to cardiac disease, 13 to epilepsy, 15 to phthisis, 19 to senile decay, and the rest to other causes. 48 patients were discharged as recovered during the year, or 6·1 per cent. of the average number resident. An outbreak of swine fever occurred which is the second since the new farm-buildings were erected in 1884. It rapidly spread during February, March, and April, at the end of which time all the pigs, with the exception of 51, had either died or had been slaughtered in the hope of stopping its spread. The total loss of pigs was 162. The outbreak could not be traced to any infection and not even a guess could be made at its origin. The Commissioners in Lunacy state in their report that special stress had been laid by them a year previously upon the need of additional asylum accommodation to meet the increasing requirements of the two counties and express their regret to be unable to report that any definite action has been taken, although there has been an increase in the number of patients. They report favourably on the condition of the day-rooms, dormitories, and bedding. The notes in some of the case-books are in arrear, and they think that the particulars relating to injuries sustained by patients should be given in more detail. They find no provision of a room or appliances for pathological research. In the absence of suitable separate accommodation cases of phthisis have to be treated in open wards. The Asylum Committee state in their report that owing to the increase in the cost of maintenance the weekly charge per patient will be raised from 7*s.* 9*d.* to 8*s.* 6*d.* as from July 1st, 1901. The sum of £285 had been expended in alterations and repairs, and works for connecting the asylum sewer with the sewerage system of the borough of Shrewsbury have been sanctioned at an expenditure of £300.

Western Counties Idiot Asylum, Starcross, Exeter (Annual Report for 1900).—The average number of patients resident during the year was 256. During the year 44 patients (33 boys and 11 girls) have been admitted. The tendency of many boards of guardians is to send to the institution only helpless and unimprovable children (idiots or imbeciles). As the institution is an educational rather than a custodial asylum for idiots, imbeciles, and the feeble-minded the term "idiot asylum" is rather inadequate to convey its meaning and purpose. Physical training, reading, writing, and arithmetic, and industrial occupations such as tailoring, boot-making, basket-making, mat-making, and wood-carving are taught in classes, while domestic work, needlework, knitting, and the manufacture of straw hats are specially taught to the girls. Mr. E. R. S. Lipscomb, the medical officer, states in his report that the institution has been exceptionally free from infectious and other diseases during the year, with the exception of influenza which attacked some of the male patients, one of whom died from it. During the year there were only three other deaths, all of them from pulmonary tuberculosis. An epidemic of ophthalmia which had long troubled the patients has at length become extinct. The Commissioners in Lunacy state that at their visit the wards and rooms were in good order and that with the exception of five patients who were ill or in bed all the rest were up and busily employed in various ways. The floors of the rooms are either dry-rubbed and stained, or treated with oil. The principal improvements which have taken place have been the building of two new workshops with dormitories overhead and a covered corridor to connect the workshop block with the main building. Steam cooking has been introduced into the kitchen. The late secretary of the institution died after 25 years of service and was succeeded by his son. The adjoining house, Elm Court, with a large garden and two acres of land, has been taken on lease. The accounts for the year closed with a balance in the treasurer's hands of £305 13*s.*

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council was held on August 1st, the President, Mr. H. G. HOWSE, being in the chair.

A report from the Committee of Management was approved. It recommended the addition of the University of Birmingham to the list of recognised universities whose examinations are accepted in lieu of the first and second examinations of the Conjoint Board. The following recommendation was also adopted:—

The committee have considered the advisability of holding an additional examination for the diploma in public health, to enable candidates who have studied under the old regulations to obtain the diploma before Jan. 1st, 1902, when the new conditions are to come into force, and they are of opinion that such an examination will be the means of obviating numerous cases of hardship. They therefore now recommend that an additional examination in public health be held in December next.

The report of the Finance Committee was received and approved. The gross income of the College for the past year was £26,104, being £893 greater than in the previous year. This increase was chiefly due to a continued advance in the amount of the fees paid by candidates for the diploma in dental surgery. As regards the fees for the examinations of the Conjoint Examining Board there was a decrease of £138. The expenditure of the College for the past year amounted to £23,989, being £424 more than in the previous year. There was a decrease of £250 in the fees paid to the examiners of the Conjoint Examining Board. The expenses of the Fellowship examinations were £328 heavier and were £29 in excess of the fees paid by the candidates, but the revised regulations will come into force in October, 1902, and this loss will not then occur.

The balance of income over expenditure amounted to £2155, but from this must be deducted a sum of £490 for one half-year's rates which had not yet been demanded.

THE BRITISH MEDICAL ASSOCIATION

MEETING AT CHELTENHAM.

THE summer general meeting of the members of the Irish Medical Schools and Graduates' Association was held at the Ladies' College, Cheltenham, on July 31st. The attendance of members was unusually large and included Professor Alexander Macalister, F.R.S., and Dr. E. D. Mapother, vice-presidents; Sir John William Moore, Dublin; Sir William R. Kynsey, K.C.M.G., Surgeon-General C. M. Cuffe, C.B., Surgeon-General C. Sibthorpe, C.B., Professor R. J. Anderson of Galway, Professor W. H. Thompson of Belfast, Colonel J. P. H. Boileau, A.M.S., Fleet-Surgeon Gilbert Kirker, R.N., and the honorary secretaries, Mr. J. Stewart and Dr. J. H. Swanton. In the absence of the President, Dr. W. Alexander of Liverpool, the chair was occupied by Dr. Mapother. The council reported that since the last annual meeting the restrictive rule with regard to qualifications for the staff had been repealed in the case of two provincial hospitals. Sir J. W. Moore stated that the subject of the exclusion of those holding the higher diplomas of his college from candidature for honorary appointments in the English hospitals had for several years engaged the attention of the Royal College of Physicians of Ireland. After some remarks on the same subject from Professor Thompson the meeting adjourned.

The annual dinner of the British Medical Association in connexion with the meeting at Cheltenham was held on August 1st at the Cheltenham College in the big hall. The company numbered close upon 400 and the chair was taken by Dr. G. B. Ferguson, the President of the Association. The toast list was a long one and whether it was that the hall was a very difficult one for the speakers to make themselves heard in, or whether the company had so much to say to one another that they could not listen to the speakers, the fact remains that most of the speeches were delivered in dumb show. This did not interfere with the length of an inaudible oration delivered by a gallant General who took no notice of cheers, talking, or shouting, and turned a deaf ear to a bugler who was summoned especially to sound the "Cease Fire" in the hopes that that martial order would attract the speaker's attention. It was noticed that the noisy, not to say tumultuous, assembly was during the delivery of Sir W. Mac Cormac's remarks perfectly quiet. Among the names of speakers on the programme were those of Mr. G. S. Bazley, Surgeon-General J. B. Hamilton, Colonel Rogers, Inspector-General A. Turnbull, Mr. W. F. Hicks-Beach, the Rev. Canon Roxby (Rector of Cheltenham), the Mayor of Cheltenham, Sir William Broadbent, Mr. J. T. Agg-Gardner, M.P., Mr. Brandt for the Deputy Mayor, Dr. Roberts Thomson, Sir William Church, Dr. R. W. Batten (Gloucester), Dr. Sabouraud (Paris), Professor Onodi (Budapest), and Professor George Dock (Michigan). The guests did not separate till a late hour which somewhat delayed the reception given by the ladies in an adjoining hall of the College. If judged by the noise occasioned the dinner would certainly appear to have been one of the most successful ever held; the guests undoubtedly thoroughly enjoyed meeting their friends, with whom they cheerfully conversed in anything but whispers.

A meeting was held on August 2nd at the Ladies' College to discuss the question of the forthcoming election of Direct Representatives to the General Medical Council. A full report of the proceedings will be found at p. 408.

As a result of the offertory at St. Matthew's Church, Cheltenham, on the occasion of the annual sermon preached by the Dean of Gloucester before the British Medical Association a sum of £40 was collected. This offertory has been divided between the Royal Medical Benevolent College, Epsom, and the British Medical Benevolent Fund.

THE GENERAL MEETINGS.

THE THIRD GENERAL MEETING.

The third general meeting was held in the Princess Hall of the Ladies' College at Cheltenham on August 1st. The chair was taken by the President of the Association, Dr. G. B. FERGUSON. The proceedings commenced with an Address in Surgery by Sir WILLIAM THOMSON, C.B., honorary surgeon to the King in Ireland, which was published in full in THE LANCET of August 3rd, p. 264. The next item on the programme was the presentation of the Stewart Prize to Dr. Patrick Manson.

Report of Constitution Committee.

The consideration of the recommendations contained in the report was resumed.

Want of space compels us to omit the discussion on the remaining clauses of the report, but we hope to publish it in a future issue. In the meantime we may say that the report was received.

THE FOURTH GENERAL MEETING.

The fourth and concluding general meeting of the members of the British Medical Association was held on August 2nd in the Princess Hall of the Ladies' College, Cheltenham, under the chairmanship of the President, Dr. G. B. FERGUSON.

The following motions received from the Section of State Medicine were duly proposed, seconded, and carried:—

1. Having regard to the paramount importance to the interests of the public health of security of tenure of office of sanitary officers, the State Medicine Section beg to express their approval of the action of the Council in promoting a Bill in Parliament to that end and their thanks for the same.

2. That, as it appears desirable in the interests of the public health to minimise opportunities for the introduction of disease by ship-borne rats, it is of importance that regulations made for this purpose should be so framed as not injuriously to affect the trade and commerce of the country. This Section therefore recommends that the captains of vessels loading at plague-infected ports should be ordered to destroy rats on board ship before loading cargo, and to take precautions for preventing rats getting on board during the time the cargo is being loaded, and that British Consular certificates should be issued to captains obeying such orders.

The following motion from the Ophthalmological Section was duly proposed, seconded, and carried:—

That it is of opinion that the just and friendly settlement of claims for injury to the eyes under the Workmen's Compensation Act, 1897, would be greatly facilitated by a knowledge of the condition of the eyesight of the injured person before the accident, and recommends that employers should adopt some simple plan whereby a record of the sight of each eye should be appended to the name of each workman in the wage-books.

After the usual votes of thanks had been accorded Sir WALTER FOSTER, in an eloquent speech, moved a cordial vote of thanks to the President, Dr. Ferguson, for his conduct of the meetings. This was seconded by the honorary treasurer of the Association, Mr. ANDREW CLARK, and carried by acclamation.

THE SECTIONS.

MEDICINE.

THURSDAY, AUGUST 1ST.

Dr. E. S. REYNOLDS (Manchester) opened a discussion on

Peripheral Neuritis in Beer-drinkers: Its Precise Causation and Diagnosis.

He commenced by describing the now well-known outbreak of peripheral neuritis which occurred in Manchester and district in the latter part of last year. Attention was first directed to the very considerable increase in the number of cases of peripheral neuritis that were being admitted into the hospitals and Poor-law infirmaries of that locality. When these cases were studied it was found that in addition to the well-recognised symptoms which had for a long time been known as those of alcoholic neuritis others, such as pigmentation of the skin, cardiac muscle failure, and loss of memory of time and place, were also present. When this disease was first described it was supposed to occur almost

exclusively among spirit-drinkers, but in this outbreak, as well as in isolated cases occurring from the year 1884 onwards, drinkers of beer were more affected. A large majority of the cases seen in the autumn of 1900 had the skin pigmentation very marked, the condition of the extremities resembling that described as erythromelalgia, suffusion of the conjunctiva and nasal mucous membrane, diarrhœa, herpes, pain, and sweating in the feet and hands. All these patients were beer-drinkers. In November arsenic was discovered to be present in several samples of beer and this, again, was traced to certain sugars used in the brewing process, which all came from the same manufactory. The presence of arsenic in these was afterwards found to be due to the use of impure samples of sulphuric acid in their preparation. The quantity of arsenic found in these beers varied from one-thirtieth to one and a half grains of arsenious oxide to the gallon; in the impure ingredients the same substance was present, in the case of invert sugar the amount of one grain per pound, in the glucose four grains, and in the sulphuric acid the amount of 100 grains per pound were found. The connexion between the ingestion of large quantities of arsenic and the disease in question being thus established they had to consider the following points. Two views on the subject might be held: first, that the symptoms were caused by the two substances acting together—e.g., that the arsenic caused the effect upon the skin and that the alcohol caused the neuritis; the second theory was that all previous cases were really due to arsenic and not to alcohol. In support of the latter theory peripheral neuritis had now almost entirely disappeared from Manchester, its former home. There had, however, been one or two cases quite lately, but in both arsenic was found in the hair of the affected patients, and on analysing the beer they had been in the habit of drinking it was found that it contained more than a trace of arsenic. Peripheral neuritis had undoubtedly occurred in persons who only drank spirits and wines, but wines were adulterated with various substances which undoubtedly contained arsenic. Whisky might become contaminated with arsenic from the use of impure sulphuric acid used in cleaning the still, and an instance was related in which crystals of arsenious oxide were actually found in a still head. Malt had been found adulterated with arsenic as a result of using coke in the drying processes. Though no such symptoms in relation to the skin had been described by observers in the earlier cases of peripheral neuritis it was possible that these might have been overlooked. There was a third possibility—i.e., that alcohol and arsenic were both able to produce all the symptoms of the disease, but that their action was intensified when they were both acting at the same time. If alcohol by itself could cause peripheral neuritis it was evident from the large amount consumed that alcoholic neuritis must be the rarest disease. He considered that a large number of the cases credited to alcohol were really arsenical in origin. Beri-beri was a form of peripheral neuritis not confined to the tropics, but which had also occurred in certain asylums, notably in Dublin. In one place where it was supposed to be endemic it affected workers in tin mines, and there he considered that the cause was arsenic; and he thought that the same cause had operated in other outbreaks of beri-beri, but he would not say that that disease was invariably due to arsenic. In conclusion he showed tubes having arsenical mirrors which had been prepared from the hairs of the patients who had been seized during the last few weeks. He showed a large number of lantern slides illustrating the scaling of the skin pigmentation, bullæ, purpuric spots, wasting of the interossei, wrist-drop, paralysis of the arm and leg muscles, and of the diaphragm.

Professor DIXON MANN (Manchester) exhibited specimens of Arsenic Crystals from Hyperkeratosis, from the Hair and from the Nail Clippings in arsenicated beer cases. He discussed the pathology of arsenical neuritis; the cases in Manchester were very severe and perhaps their most prominent symptoms were the extreme tenderness of the muscles and the disturbance of the cardiac innervation. He thought that both alcohol and arsenic combined in their causation, but that alcohol acted by interfering with the molecular changes in the nerve cells, and so rendering them liable to be affected by the arsenic. The effects seemed to some observers to be in excess of the amount of arsenic taken. He saw no evidence of this. He thought that very large amounts of arsenic must have been taken in some of the cases. Some of the samples of beer examined contained one and a half grains and even up to two grains per gallon, and a gallon per day was not an uncommon amount to be drunk. With regard to the action of arsenic on the nervous tissues he remarked on the affinity of the keratin tissues for arsenic; it was found in the nails, the hair, the epithelial cells, and not only in such of those tissues as were removed from the influence of the active circulation of the blood. There was a substance called "neuro-keratin" which had a similar composition. It was found in the axis cylinders and the sheath of Schwann and fibrils of the same substance traversed the nerves in every direction. There was also much neuro-keratin in the brain. It was, however, very much more abundant (10 times) in the white substance than in the grey. In view of this fact he obtained some brains from patients who had died from arsenical neuritis and roughly divided the white from the grey matter. He then examined the two portions for arsenic, and as a result he found that in 240 grammes of white matter there were 0·8 milligrammes of arsenic, while in the same amount of grey matter there was merely a trace. This was the result of one analysis. The others were similar, and in all cases the white matter contained more arsenic than the grey. In answer to the question as to how did the arsenic produce the neuritis he thought that the central cells were affected as well as the peripheral nerves. If the taking of arsenic in beer was discontinued, for the first few days the symptoms of neuritis increased both in intensity and the area of the affected parts. He would compare its action to that of phosphorus as described by Mott, who considered that that poison acted on the nerve cells by preventing them storing up oxygen in their protoplasm.

Dr. A. P. LUFF (London) approved of Professor Mann's theory as to the action of arsenic on the nerve-cell. With regard to Dr. Reynolds's questions he thought there was alcoholic neuritis pure and simple, but he agreed that the intense nerve pain, pigmentation, and skin eruptions were points of difference between the two forms. He did not think that if these pains and eruptions had been present in the earlier described cases of alcoholic neuritis that they could have been overlooked. He also thought that if these earlier cases had been due to arsenic that substance would have been detected in the body either in the course of toxicological or other observations. Nearly all the cases in Manchester appeared to have been affected by arsenic derived from the same source.

Dr. T. N. KELYNACK (Manchester) showed further slides and discussed the cases seen in Manchester. The more important conclusions are shown in the following table:—

Table indicating the Relative Frequency of Peripheral Neuritis in Different Parts of the Country.

Hospital.	Years.	Total number of cases.	Number of cases of peripheral neuritis.	Percentage.
Royal Infirmary (Dundee)	1899-1900	9,000	9	0·1
Addenbrooke's (Cambridge) ...	1878-1901	9,096	26	0·28
Royal Victoria (Belfast)	1892-1899	7,828	23	0·29
London Hospital (Whitechapel) ...	1890-1899	47,188	202	0·42
St. Thomas's Hospital (London)	1893-1898	7,656	37	0·48
St. Bartholomew's Hospital (London)	1893-1898	10,009	52	0·51
Royal Infirmary (Manchester) ...	1892-1898	9,300	109	1·17
Royal Infirmary (Manchester) ...	1899	1,300	21	1·61
Royal Infirmary (Manchester) ...	1900	1,343	62	4·61
Royal Infirmary (Manchester) ...	November, 1900-January, 1901	336	43	12·7

Such returns clearly indicated that much of the so-called alcoholic paralysis met with in Manchester and district during recent years had really arisen from the use of arsenicated beer. He thought that the effects of arsenic had been modified by the method of its administration in beer

and thought that they had been accentuated by the action of the alcohol.

Professor W. OSLER (Baltimore) said that though very little wine and spirits were now taken by the upper classes in America, among the lower classes both whisky and beer were extensively consumed. Alcoholic neuritis was rare in that country, but it did occur, and the symptoms observed were identical with those which had been described in arsenical cases, with the exception of those relating to the skin and the vaso-motor functions. Keratosis, bullæ and the like were absent. For these reasons he considered that alcohol was the cause of the disease in the cases he had seen. With regard to the excessive pain, in other forms of neuritis, such as that occurring after typhoid fever the pains might be very severe.

Dr. NATHAN RAW (Liverpool) saw 212 cases during the Manchester epidemic; of these only 22 were acute. He thought the difference in severity was due to dosage, though there were more cases in women than in men, yet all the cases among the former were chronic in character, the reason being that the women usually drank a certain amount of beer regularly every day, whereas the men more often drank a very large quantity on particular occasions. He thought that all the cases in that epidemic were caused by arsenic and that alcohol intensified its action. The effects of arsenical neuritis were recovered from more rapidly and completely than those of the alcoholic form.

Dr. F. M. POPE (Leicester) had seen a good many cases in Leicester similar to those in Manchester. In all of these in which the source of the beer drunk by the patients could be ascertained it was found to have been contaminated by arsenic contained in products from the same manufactory as those which caused the Manchester cases. When such a great number of persons could take such very large quantities of alcohol without the production of a single symptom of peripheral neuritis he hesitated to accept the theory that alcohol alone could produce the disease.

Mr. F. ORMROD (Workington) related his experience of many cases which had occurred there.

Dr. R. CATON (Liverpool) had traced a few cases to lead and thought that the substance should be looked for.

Sir WILLIAM GAIRDNER (Edinburgh) said that he was unfamiliar with alcoholic paralysis previously to 1884 when he saw cases in Manchester with Dr. Ross. He considered that no case of this nature could have escaped his attention, but he thought that he had not seen more than eight or 10 cases in Glasgow since that time. In view of the large amount of alcohol consumed in that city he thought that alcohol was not the cause.

Dr. REYNOLDS replied and the PRESIDENT (Dr. E. T. WILSON) summed up.

Dr. R. CATON (Liverpool) read a paper on

The Means of Arresting Acute Endocarditis.

He thought that progress had been made in understanding the endocarditis of acute rheumatism and that it would not be long before the microbial origin of the disease would be absolutely recognised; not so much progress had, however, been made in the treatment of the complaint. He described the results of his treatment in 92 cases of endocarditis arising in the course of acute rheumatism while the patient was actually in the hospital. He insisted on three points. First, absolute rest in bed for at least six weeks on low diet; second, that salicylates did not do so much good to the heart as to the joints, and that such drugs as digitalis, strophanthus, &c., were on the whole injurious. Small blisters applied in succession over the præcordial area were very valuable and he discussed the action, or possible action, of these in exciting resistance to bacterial growth in the tissues of the cardiac valve. Thirdly, he gave sodium iodide with a view to promote absorption of the effused fibrinous material on the valves. He considered that in many of his cases he had quite prevented the extension of the disease and many were now still in good health after considerable periods.

Professor OSLER thought that they owed a distinct debt to Dr. Caton for his attempts to combat what was undoubtedly the most serious part of acute rheumatism. He had followed out the treatment and was sure that it was the correct one, but he regretted to say that he was afraid it could only be of advantage in a few cases. It was very desirable to obtain a subsequent history of the patients at a later stage, as frequently the ultimate damage caused to the valves only became apparent after a considerable interval.

Professor CLIFFORD ALLBUTT (Cambridge) thought it singular that they knew so little of the history of patients in after years. It would give them much assistance if they could see patients in 10 years after such attacks as had been described. He thought that while some murmurs reappeared after a patient's discharge from the hospital there were others that cleared up. He thought that Dr. Caton's treatment should certainly be carried out and suggested in addition that means should be taken to decrease the total mass of the blood.

Sir WILLIAM BROADBENT (London) thought it was a pity to stereotype forms of treatment and that that described by the reader of the paper was not so new as to merit a specific name. Treatment on the lines advocated by Dr. Caton had been well known since the days of Sibson. He agreed with Professor Allbutt that they often saw cases where murmurs which had formerly been loud had quite disappeared. It was not necessary to consider that a murmur always meant functional impairment of the heart, and if a murmur were present he would prefer a loud to a more faint one. If salicylates were to be of any use in the prevention of acute endocarditis or its arrest in the earlier stages they should not be given in the usual routine manner; 15 grains per hour should be given for six hours on two succeeding days. He thought that given in this way it was often efficacious. After a murmur had appeared the salicylates should be stopped as they could only do harm.

Sir WILLIAM GAIRDNER said that Sibson had taught years ago that patients should not get up for some considerable time after the temperature had become normal in rheumatic fever, and that on the occurrence of the slightest departure from a normal state they should be sent back to bed again.

Dr. W. EWART (London) agreed with Dr. Caton as to treatment, but thought that the cases with hardly appreciable murmurs were the most insidious and the worst. He thought that in future they would be able to treat endocarditis by anti-microbic remedies; even the malignant forms were not quite so hopeless as was formerly thought. He had had evidence in one case that although it proved fatal the heart had been undergoing a process of recovery.

Dr. SAMUEL WEST (London), who was now in the chair, said he rather deprecated attacking a question such as this by means of statistics. He preferred the personal opinion of a good clinical observer. In many cases the murmur might disappear, but that did not always mean that the disease had disappeared also. In some such cases if the patient's cardiac dulness was marked out before and several hours after he got out of bed marked evidence of dilatation of the heart could be found at the latter time, and in any such case prolonged rest in bed was absolutely necessary.

SURGERY.

THURSDAY, AUGUST 1ST.

Mr. GILBERT BARLING (Birmingham) opened the discussion on

Gastro-jejunostomy in Ulcer of the Stomach and Duodenum and Pyloric Stenosis.

He considered it was of importance to come to some conclusion as to the relative mortality of gastric ulcer; the statistics appeared to vary very widely—French surgeons placed them as high as from 50 to 20 per cent. This he thought much too high; he should feel inclined to place it at 10 per cent., or even lower. Death in these cases was commonly due to perforation, hæmorrhage, or inanition, and but rarely to consecutive cancer. He thought that the belief of French surgeons in the frequency with which cancer followed on such ulcers was exaggerated. As regards the indications for operative treatment, he first considered the symptom of hæmorrhage; acute bleeding, such as might bring the patient to the verge of death, he did not think a good case for operation, for it had been shown frequently that in such cases the source of even a violent hæmorrhage might be impossible of detection during life owing to the minuteness of the lesion. Cases of recurrent and slight hæmorrhages, he thought, specially invited successful treatment, and in this connexion he called attention to the comparative frequency with which considerable ulceration existed without bleeding being detected, but these, and those cases of slight and recurrent hæmorrhages, were marked by a chronic invalidism, a condition which demanded operative treatment if such could be safely afforded, irrespectively of the liability to mortality arising

from the untended ulcer. Such operative treatment could be safely rendered, and of the possible operations he considered gastro-jejunostomy preferable, it was attended with slight risk, it set the parts at rest, and was allowable even under extreme conditions. He commented here on the difficulty of differentiation between the symptoms arising from a chronic gastric ulcer and a dyspepsia of the neurotic type. In the consideration of cases of stenosis of the pylorus with dilated and hypertrophied stomach (he excluded from this connexion the atonic dilatation of the organ in asthenia), he considered the use of Loreta's method of dilatation inadvisable—there was no inconsiderable risk of rupture of the gastric coats and even death therefrom, as he had himself seen; further, there was a liability to a recontraction of the pylorus. The operation of election in selected cases was pyloroplasty; where there was simple stenosis it was an admirable operation, but with adhesions or such thickening as simulated malignant growth it was quite inadmissible. The separation of adhesions—gastrolysis—he thought of doubtful use, they usually re-formed; gastro-jejunostomy he thought promised better results. As regards the latter operation he believed it to be the most frequently adopted and one most variable in its mode of performance. Should suture, or mechanical union, simple or complex anastomosis, or should the anterior or posterior sites of implantation be adopted? As regards the first of these matters he noted that the use of mechanical means of union was first in the field and by their simplicity greatly popularised the operation. Now sutures were pre-eminent. Personally, he now used double rows of continuous sutures, but he thought the decision lay in individual skill in manipulation and in the state of the patient at the time of the operation. As regards the mortality arising out of the operation, he thought that 20 per cent. would well cover it, but that with some surgeons it was as low as from 10 to 5 per cent. With recovery the results were as a rule excellent, but he should like some consideration as to the possibility of reducing the anxiety too often exhibited by the patient during the first few days after operation—a condition due doubtless to regurgitation of intestinal contents into the stomach.

Mr. GEORGE HEATON (Birmingham) stated his belief that the mortality from gastric ulcer was even less than 10 per cent., 6, 5, or even 4 per cent. might be more correct. He was not sanguine of the use of operation in cases of hæmorrhage. In distension of the stomach following stenosis its triumph was marked. He would add one other case as indicative of operation to Mr. Barling's list, that of hour-glass constriction of the stomach due to the healing of old ulcers. He agreed to the inadvisability of Loreta's method and favoured gastro-jejunostomy in general and pyloroplasty for special cases. In gastro-jejunostomy the posterior union was theoretically the more correct, as the union would be in the most dependent spot when at rest in bed, but the anterior position was the easier and surer to work at and so gave less liability to mortality. He favoured the use of the button, it was quick in application and there was lessened shock. There was less liability to contraction of the new orifice with the use of the button than with suture. He strongly deprecated the use of the cheap and nasty foreign-made buttons now on the market. In some cases he had been able to overcome the liability to regurgitation into the stomach by placing the patients on an inclined plane. He also remarked the utility of a well-timed gastro-jejunostomy in cases of pyloric cancer.

Mr. L. A. BIDWELL (London) thought there was truth in the idea of French surgeons that increased secretion of hydrochloric acid produced spasm of the pylorus and that there was such increase of hydrochloric acid in gastric ulcer; in such cases, and especially in the poor who could not afford to rest or follow dietetic measures, operation was indicated. He was sorry to hear the strictures passed on Loreta's method; his experience was not extensive, but he had one case in which there had been no recurrence after eight years. The modified method—that of dilating through the invaginated stomach—was useful in slight contractions, probably from spasm. In pyloroplasty he had good results; in one case there was recurrence of gastric dilatation after one year, owing to the forming of adhesions at the scar; these he removed and covered the area with a flap of parietal peritoneum. In gastro-jejunostomy he now used the anterior method, it was easier, there was better chance of making a water-tight connexion, and so it was safer. He did not like the button—he could not conceive anything worse for an ulcerated stomach than the presence of a mobile button within its cavity.

Dr. SINCLAIR WHITE (Sheffield) agreed that in a very limited sense pyloroplasty was the operation of election, but no adhesions must be present. Gastro-jejunostomy always met one's requirements, for two healthy sites for union could be selected. He pointed out that Loreta was not the first to act directly on the pylorus; Rydygier had a year previously performed pylorectomy. In gastro-jejunostomy he preferred the anterior implantation, but thought the point strained; all that was required was a water-tight joint; this could be best effected anteriorly. He preferred the suture, but confessed that in his hands the button saved 25 minutes in the operation.

Mr. C. A. MORTON (Bristol) narrated a case in which by the operation of gastro-jejunostomy he had been able to secure comfort and well-being for a man, aged 42 years, who for seven years had been in a state of miserable invalidism.

Mr. J. RUTHERFORD MORISON (Newcastle-on-Tyne) said one cause of mortality in these cases had been overlooked, one that was dramatic in its suddenness—syncope, the patient just dropped out. He did 22 consecutive operations of pyloroplasty without death, yet he acknowledged this was a matter of luck, for two cases as good in appearance as any of the others died from this cause the night preceding the day fixed for operation; and of two cases of successful gastro-jejunostomy one, when apparently well, dropped dead. He regarded operations in hæmorrhage as unsatisfactory, for he had seen apparently hopeless cases of hæmorrhage recover without operation; and in a case where he opened the stomach of a young woman for such symptoms nothing could be found either by touch or sight. The patient died. There were found two small ulcers on the anterior wall of the cardiac orifice in a position which could not be reached; one of these had perforated. He, like Mr. Barling, had operated with the expectation of finding gall-stones and found an ulcer in the region of the pylorus. He thought that such ulcers were not sufficient to cause constriction of the pylorus and dilatation of the stomach, but that owing to the difficulty of driving the food over the ulcer surface the muscle coats became hypertrophied and irregular in their action. He thought adhesions of no moment, save as indications of disease within the viscus; he had always found the two concurrent. He animadverted on dilatation through the invaginated gastric wall; if dilatation was indicated it should be done properly through an opened stomach; the risk of the opening was very slight. His experience of gastro-jejunostomy was not good; he had tried the simple method of anastomosis and one in which he made a new S-shaped duodenum out of the jejunum, to which was attached the old duodenum as a sort of bile duct; this method, indeed, avoided regurgitation, but the mortality was still 50 per cent.

Mr. J. PAUL BUSH (Bristol) had tried posterior gastro-jejunostomy with success but agreed that it was a longer and more difficult procedure than by the anterior anastomosis.

Mr. R. H. PARRY (Glasgow) said was it not bad to cut bands of adhesion and at the same time leave masses of thickened tissue in the walls of an organ? He felt that there should be some operation intermediary between pyloroplasty and gastro-jejunostomy, yet not pylorectomy. He had in one case extirpated the gall-bladder and excised thickened areas from the pylorus with the best results.

Dr. G. B. FERGUSON (Cheltenham) President of the Association read a paper on

An Operation for Perforated Gastric Ulcer and Three Similar Cases occurring in Gloucestershire.

His case was a classical one, with the special point that the condition was at once recognised and was operated on within three hours. The perforation was on the posterior surface and was closed with two rows of Lembert sutures. No general washing out was practised, the abdominal cavity being merely sponged. The patient, a woman, aged 25 years, was nourished entirely by enemata for 14 days and made an uneventful recovery. Dr. Ferguson then detailed three similar cases operated on in his shire—one successful and two unsuccessful. He gave a very complete *résumé* of the statistics and history of such operations, and found that from 110 published cases noted by him there was yielded the excellent result of 41 recoveries. He strongly insisted upon the necessity of an early recognition of the condition and immediate operation and remarked that the life of the

sufferer depended more upon the one into whose hands the case first came than upon the operator.

Dr. J. MURPHY (Sunderland) further emphasised the urgency of such cases and showed by the citation of some cases how the promptness of an ordinary 'busman in bringing in a patient, was more to the point than the dallying of a practitioner of medicine.

Mr. D'ARCY POWER (London) remarked on the frequency with which he had seen such cases of late and asked if there was any general feeling that there was an increase of the disease.

Mr. BARLING replied to a few points of the discussion and stated that he thought Mr. D'Arcy Power's experience was one of those curious irregularities in the law of averages such as they must have each one experienced at some time or other.

Mr. J. RUTHERFORD MORISON (Newcastle-on-Tyne) read a paper on

The After-history of a Series of Cases of Pyloroplasty for Gastric Ulcer and Pyloric Stenosis.

He said that in his experience pyloroplasty had been the most satisfactory operation in abdominal surgery. Taking into consideration the feeble condition of the patients, the mortality of the operation had been less than that of any other, and the results, immediate and remote, were equally successful. By pyloroplasty he did not mean any text-book operation, but any plastic interference with the pylorus. He had made careful inquiry as to the present condition of his first 20 cases operated upon. The first was done six years and eight months ago and the last two years ago. These inquiries showed that 14 of the patients were now in good health and took ordinary food; one could not be found but was well when last heard of; two were dead; and three, though much improved, still had occasional stomach trouble. Of the deaths one occurred about 18 months after operation from cancer of the stomach commencing at the site of operation—a malignant had been mistaken for a fibrous stricture of the pylorus. The second died from phthisis pulmonalis 27 months after pyloroplasty for cicatricial stricture of the pylorus; until the commencement of his last illness he had been well and free from stomach troubles. None had had a return of the symptoms and signs due to pyloric stricture. These results, he said, seemed to justify his belief that pyloroplasty was the operation of selection for simple pyloric stricture and that gastro-jejunostomy should be reserved for cases in which the pylorus was so bound down or involved in adhesions as to be inaccessible. A detailed table of the cases was shown.

Mr. BARLING remarked on the great usefulness of such a paper, since it was of the utmost importance to trace the after-histories of such cases.

Dr. G. T. BEATSON (Edinburgh) read a paper on

The Treatment of Cancer of the Breast by Oöphorectomy and Thyroid Extract.

He said he brought this matter forward to open discussion on the experience gained during the five years since the procedure was described in THE LANCET.[1] He gave an account of a case which he thought exemplified the beneficial effects of the treatment in a remarkable manner, for within a period of six months a large cancerous mamma had entirely atrophied and the extensive glandular enlargement present before the operation had disappeared. He made mention of what Mr. Watson Cheyne had called this "striking" control of the course of carcinoma of the female breast by oöphorectomy and thyroid feeding, as furnished by other surgeons. He raised the question of the possible explanation of such results, especially in the light of those cases of apparently spontaneous disappearance or quiescence of mammary carcinoma. Cases where improvement resulted from oöphorectomy he thought might bear on the etiology of the disease, since he regarded the apparent controlling influence of the ovaries as inimical to the parasitic theory of the disease. There arose further the big question, Did these results justify the adoption of such treatment as a primary method in the early stages of the disease? In concluding, he affirmed his confidence in the utility of the combined oöphorectomy and thyroid feeding in cases where direct operation on the disease was impossible.

Mr. BARLING said he had not done the operation and he was of opinion that the time had not come for the substitution of such a method for the recognised measures; he thought the special influence of ovarian removal on the disease not proven.

Mr. MCADAM ECCLES (London) had so treated certain cases last year with a measure of success. He asked if there was any use in the operation in cases of mediastinal growth. He believed the conjoined direct and indirect measures had a future, but was of opinion that removal of the ovaries after the menopause was useless, but as late as 39 years he had seen good effects.

Mr. H. J. STILES (Edinburgh) thought the operation was likely to be adopted even for early stages of the disease, but at present not as a routine except in far gone cases.

Mr. RUTHERFORD MORISON stated that he had had some success with the method but he must quote two cases in which the results were antagonistic. The first case was that of a woman operated upon 25 years before death; the notes of the operation by the operating surgeon had been lost, but the woman stated that both her ovaries were removed; whereas before the operation she menstruated and bore children, since, she had neither menstruated nor conceived. She died from carcinoma of the breast. The second case was one of double ovarian cysts; the glands were removed and the patient died five years later from cancer of the breast.

[1] THE LANCET, July 11th, 1896, p. 104.

PSYCHOLOGICAL MEDICINE.

WEDNESDAY, JULY 31ST.

The Rôle of Toxic Action in the Pathogenesis of Insanity.

The discussion on this subject, which was opened by Dr. W. FORD ROBERTSON in a speech which we reported last week (p. 337), was continued by Dr. ROBERT JONES (Claybury Asylum) who said that he regarded the views enunciated by Dr. Robertson as too exclusively materialistic. He was himself inclined to look upon mental processes as not entirely of material nature and essence, but he regarded the relation of mind and body as a parallelism. He was inclined to look upon many of the changes in the alimentary canal as secondary to, and consequent upon, pre-existing general paralysis rather than as a cause of the disease.

Dr. EDWIN GOODALL (Joint County Asylum, Carmarthen) cited instances of puerperal insanity of toxic origin and arising from the presence of streptococcal infection and pointed out that such cases had been successfully treated by the injection of anti-streptococcic serum. The action of such a disease as erysipelas in arresting, as it sometimes did, acute insanity was inexplicable, though the fact was undoubted. He looked upon general paralysis as complicated with two sorts of toxic agencies—viz., exogenous toxic action arising from alcohol, syphilis, and the like, and endogenous intoxications following upon lesions in the inner coat of the alimentary canal.

Dr. EDWIN S. PASMORE (Banstead Asylum) referred to phthisis as a cause of insanity. The toxins of phthisis produced various forms of mental disturbance. He pointed out that experiments made in Professor Pasteur's laboratory in Paris had shown that loose ligature of the base of the appendix vermiformis was followed by a profuse multiplication of the bacillus coli communis within its cavity and a secondary local peritonitis arose therefrom. It was quite possible that the small intestine in general paralysis might be the seat of unknown (? vascular) disturbances which might be followed by an abnormal multiplication of the intestinal bacteria producing in its turn a degree of toxæmia which would act prejudicially on the brain. Such an event would serve to aggravate an already established general paralysis, but he did not believe that general paralysis was the secondary result of auto-toxæmia from the alimentary canal.

The PRESIDENT (Dr. J. B. SPENCE) thought that the swing of the pendulum was again on the turn and that the treatment adopted by their forefathers of giving blue pill and black draught might once more become popular in the treatment of insanity, as it had in other diseases.

Dr. ROBERTSON, in replying to the questions raised during the discussion, reiterated his conviction of the importance of toxic changes in the alimentary canal as productive factors of insanity.

Dr. A. T. SCHOFIELD (London) read a paper on

Some Conditions of Success in the Treatment of Neurasthenia.

He used the word "neurasthenia" in the broadest sense and included hysteria in it. He regarded the personality of the physician as an important factor in successful treatment,

the qualities needed being sympathy, patience and perseverance, firmness, tact, and honesty towards his patient. The physician should realise in regard to hysterical patients the significance of the dictum that "diseases of the imagination are not imaginary diseases." Hysteria and neuromimesis both arose from a disorder of the "sub-conscious mind." In neurasthenia the exciting cause arose *ab extra*. The patient might already have been treated by various local practitioners before he consulted the alienist or nerve specialist and the latter should not "pooh-pooh" the symptoms as trivial or imaginary, because that would provoke distrust in the patient's belief of the physician's power of cure and thus retard recovery. Sexual excesses, both natural and unnatural, should be carefully inquired into and treated in neurasthenic cases. The treatment should be varied to suit the patient and not *vice versâ*. The attitude of the physician should, on the whole, be dogmatic and weighty, the nurse placed in charge of the patient should be docile and unaggressive, one of a type intermediate between the hospital and asylum nurse. The patient should be treated in a "home" or special institution where the dietary could be varied exactly in conformity with medical orders. Grounds for open-air exercise must be open to the patients. Neurasthenians required rest, with a little massage and some degree of over-feeding. Hypnotism was of doubtful value. Electricity was better by reason of its direct action on the tissues and indirectly by the "mental suggestion" which was aroused in the patient. Rest in bed might be bad in certain mental cases with a tendency to fixed delusions. Introspection should be discouraged in such patients and diversions were necessary to do so. Any degree of restlessness, insomnia, dyspepsia, or constipation which might be present should be suitably treated. After convalescence the patient should not return to his old life and surroundings, but a different kind of life and occupation should be chosen. Cycling and golfing were powerful therapeutic aids to treatment.

In the discussion following the above paper,

The PRESIDENT emphasised the proposition that the physician in charge of neurasthenic and hysterical cases should be kind, sympathetic, tactful, and firm towards his patient and said that Dr. Schofield's paper was of especial interest to those who in our asylums had to treat acute mental disorders allied to neurasthenia and hysteria.

Dr. FLETCHER BEACH (London) said that sympathy on the part of the physician was a *sine quâ non* in successful treatment, the patient being more in need of sympathy than of medicine. The patient's symptoms were not to be scoffed at, because that made him lose heart and confidence in the physician. Perseverance and tact were also of importance. Attention to detail was a point of practical importance—e.g., to plan out for each day the details regarding diet, sleep, and occupation for the patient. This removed the patient's mind from morbid introspection. A nursing home and the Weir-Mitchell treatment were costly, but open-air treatment (exercise and sitting out of doors) was cheap and included the advantages of sunlight. Hypnotism was not so successful as treatment of the gastro-intestinal tract in order to correct auto-intoxication.

Dr. F. W. EDRIDGE-GREEN (Hendon) thought that hysteria and neurasthenia blended and that sometimes they merged into delusional insanity with "fixed ideas." Thus, one patient mentioned by him had the idea that constipation was beneficial, and she thus did all in her power to avoid action of the bowels.

Dr. JONES inquired whether post-influenzal mental cases were more frequently of the exalted or of the depressed type, and questioned the value of stimulants because in some cases he had known patients to lapse into habits of intemperance.

Dr. SCHOFIELD, in replying, stated that the long neglect by physicians of the psychology of the sub-conscious mind was one cause of backwardness in therapeutic knowledge. Hysterical and neurasthenic patients were not malingerers as a rule. Post-influenzal psychoses were sometimes of a melancholic and sometimes of a delusional type, and markedly obstinate to treatment. Stimulants should be given only after ascertaining the previous habits of the patient.

Dr. GOODALL read a paper on

The Anthropometrical Examination of Asylum Patients

with a scheme for the same. He pointed out that the United States and Italy were far ahead of us in this respect. He suggested a scheme for anthropological measurements of the head, face, body, and limbs, and exhibited callipers and goniometers for measuring lengths and angles. The variations in 28 normal subjects as regards measurements on the two sides of the body showed that little asymmetry existed, but marked asymmetry existed in the insane.

The PRESIDENT and Dr. JONES made a few appreciative remarks and suggested that Dr. Goodall should draw up a scheme for asylums so that others could coöperate in making anthropometrical observations on the insane.

ANATOMY AND PHYSIOLOGY.

WEDNESDAY, JULY 31ST.

After Professor MACALISTER'S opening address a discussion took place on

The Topographical Anatomy of the Thoracic and Abdominal Viscera from a Systematic and Clinical Standpoint.

Professor CHRISTOPHER ADDISON (Sheffield) was followed by Dr. E. C. CARTER (Cheltenham) and other speakers.

Mr. T. S. ELLIS (Gloucester) then read a paper on the Physiology of the Lower Limb and the Military March, and this was followed by a paper read by Mr. E. H. VAN SOMEREN (Venice) entitled

Was Luigi Cornaro Right?

He said: Being a young and obscure general practitioner, it is with some trepidation and an apology that I present myself before this section. The reasons for my doing so are: First, that I believe that a hitherto unsuspected reflex in deglutition has come to light, which has an important bearing on health, the prevention of disease, and metabolism. Secondly, that any theory whatever based on a possible physiological function claiming to diminish, as this does, the amount of sickness and suffering now existent, should have serious investigation. Thirdly, that I desire to enlist your skilled help in the consideration of the theories I have doubtless crudely erected on my premiss. According to the "Encyclopædia Britannica" "Luigi Cornaro (1467–1566) was a Venetian nobleman famous for his treatises on a temperate life. From some dishonesty on the part of his relatives he was deprived of his rank and induced to retire to Padua where he acquired the experience in regard to food and regimen which he has detailed in his work. In his youth he lived freely, but after a severe illness at the age of 40 he began under medical advice gradually to reduce his diet. For some time he restricted himself to a daily allowance of 12 ounces of solid food and 14 ounces of wine. Later in life he still further reduced his bill of fare and he found that he could support his life and strength with no more solid meat than an egg a day. So much habituated did he become to this simple diet that when he was above 70 years of age the addition by way of experiment of two ounces a day had nearly proved fatal. At the age of 83 he wrote his treatise on the 'Sure and Certain Method of Attaining a Long and Healthful Life.' And this work was followed by three others on the same subject composed at the ages of 86, 91, and 95 respectively. 'They are written,' says Addison,[1] 'with such a spirit of cheerfulness, religion, and good sense as are the natural concomitants of temperance and sobriety.' He died at the age of 98." Some say at the age of 103. Now, was Luigi Cornaro right? Did he make use of a physiological process unknown to us of the value of which he was not cognisant? To live to an advanced age must we be as temperate as he, reducing the quantity of our food to a minimum required by nature? That we all eat more than we can assimilate is unquestionable. How can we determine the right quantity? Instinct *should* guide us, but an abnormal appetite often leads us astray. Nature's plans are perfect if her laws are obeyed. Disease follows disobedience. Wherein do we disobey? We live not upon what we eat but upon what we digest. Then why should undigested food, recognisable as such, be deemed a normal constituent of our solid egesta? Something like the following must be a common experience to general practitioners, especially to those practising on the continent. The patient comes to see us and volunteers the information that he or she has "the gout," "rheumatic gout," or "dyspepsia." Symptoms are asked for. The case is gone into carefully for causation. An appropriate diet and an appropriate bottle of medicine are prescribed. As the patient leaves the room we may or may not call attention to the fact that both teeth and saliva are meant to be used. The patient returns better, *in statu quo*, or worse.

[1] Spectator, No. 195.

If better he remains so while under treatment and relapses when he returns to ordinary habits. If unaffected or worse we try again and again until we despair, then take him, or send him, to a consultant. Temporary benefit, possibly owing to renewed hope, results, but finally the unfortunate patient gets used to his suffering, and, if he can afford it, is sent to join the innumerable hosts that wander from one *Bad* to another, all Europe over, trying, praising, and damning each in turn. Their manner of living is, of course, at fault. Nature never intended that man should be perpetually on a special diet and hugging a bottle of medicine, nor did she ordain that he should go wandering over Europe drinking purgative and other waters.

Though early yet to speak with certain voice, it would seem that we are provided with a guard, reliance on which protects us from the results of malnutrition. There seems to be placed in the fauces and the back of the mouth a monitor to warn us what we ought to swallow and when we ought to swallow it. The good offices of this monitor we have suppressed by habits of too rapid eating, acquired in infancy or youth. Last November my attention was called by Mr. Horace Fletcher, an American author living in Venice, to the discovery in himself of a curious inability to swallow, and a closing of the throat against food unless it had been completed masticated. My informant stated that he noticed this peculiarity after he had begun excessively to insalivate his food, both liquid and solid, until all its original taste had been removed from it. Any tasteless residue in the mouth, being refused by the fauces, required a *forced* muscular effort to swallow. He further told me that since adopting this method of eating he had been cured of two maladies, adjudged chronic, the suffering from which rendered him ineligible for life insurance. His weight now became reduced from 205 pounds to 165 pounds. He had practised no abstemiousness, had indulged his appetite, both as to selection and to quantity, without restraint, and for the last three years had enjoyed perfect health. After his cure he was accepted without difficulty for insurance, the last examination finding him an unusually healthy subject for his age. Having leisure he had spent three years in investigating the cause of his cure, had pursued experiments upon others and had extended his inquiries both in America and Europe, until our meeting in Venice. He had also published a statement and inquiry in book form entitled "Glutton or Epicure," which has been reviewed by THE LANCET.[1]

For nearly a year I also had been experimenting on myself and others with various diets and was ready to believe that in the manner of taking food and not altogether in its varying matter lay perhaps its protean effects on our systems. I at once adopted the same method of eating. At the end of six weeks I noticed that not only did the fauces refuse to allow of the passage of imperfectly prepared food, but that such food was returned from the back to the front of the mouth by an involuntary, though eventually controllable, muscular effort taking place in the reverse direction to that occurring at the inception of deglutition. What actually happens is this: Food as it is masticated slowly passes to the back of the mouth and collects in the glosso-epiglottidean folds, where it remains in contact with the mucous membrane containing the sensory end-organs of taste. If it be properly reduced by the saliva it is allowed to pass the fauces, a truly involuntary act of deglutition occurring. Let the food, however, be too rapidly passed back to these folds—i.e., before complete reduction takes place—and the reflex muscular movement above referred to occurs. The process of this reflex is as follows. The tip of the tongue is involuntarily fixed at the backs and bases of the lower central incisor teeth by the anterior fibres of the genio-hyoglossi muscles. With this fixed point as fulcrum, the lower and middle fibres of these muscles, aided by those of the stylohyoid and styloglossi muscles, raise the hyoid bone, straighten out the glosso-epiglottidean folds, passing their contents forwards by the fauces, the opening of which is closed by approximation of its pillars and contraction of the superior constrictor. The tongue, arched postero-anteriorly by the genio-hyoglossi, palato- and stylo-glossi muscles, laterally, by its own intrinsic muscles, is approximated to the fauces, soft and hard palates in turn, and thus the late contents of the glosso-epiglottidean folds are returned to the front of the mouth for further reduction by the saliva preparatory to deglutition. The word "reduction" is used for the reason that all foods tested are found, without exception, to give an acid reaction to litmus when served at table. The reflex muscular movement occurs in the writer's case from five to 10 times during the mastication of each mouthful of food according to its quantity and its degree of sapidity. As often as it recurs the returned food continues to give an acid reaction, while food allowed to pass the fauces is alkaline. Saliva flowing in response to the stimulation of taste seems more alkaline than that secreted in answer to mechanical tasteless stimulation. It is found that the removal of original taste from any given bolus of food coincides with cessation of salivary flow and complete alkaline reduction The fibre of meat, gristle, connective tissue, the husk of coarse bread, and cellulose of vegetables are carefully separated by the tongue and buccal muscles and rejected by the fauces. To swallow any of these necessitates a forced muscular effort which is abnormal. Adult man was not originally intended to take his nourishment in a liquid form, consequently all liquids having taste, such as soup, milk, tea, coffee, cocoa, and the various forms of alcohol, must be treated as sapid solids and insalivated by holding them in the mouth, moving the tongue gently with straight up-and-down masticatory movement until their taste be removed. Water, not having taste, needs no insalivation and is readily accepted by the fauces.

In explanation of the phenomenon described, the following theory is advanced. That the fauces, back of the tongue, epiglottis, in short, those mucous surfaces in which are placed the sensory end-organs of taste and "taste-buds" (the distribution of which, by the way, has yet to be explained), are the surfaces which, readily becoming accustomed to an alkaline contact by excessive insalivation and consequent complete alkaline reduction of the food, afterwards resent an acid contact and express their resentment by throwing off the cause of offence by the muscles underlying them. This phenomenon must not be confused with the cases of rumination and regurgitation which from time to time are recorded. The food in this case is not swallowed, nor does it pass any point from which it can be regurgitated. Eighty-one individuals of different nationalities and from several classes of society whom I have studied are now in conscious possession of their reflexes. These seem readily educated back to normal functions by those who seriously and patiently adopt the habit of what seems only at first to be excessive insalivation. The dictum "bite your food well" that we so often use has no meaning to those suffering from the results of mal-assimilation and mal-nutrition, especially should they have few or no teeth of their own. I make so bold as to state that dyspepsia *et morbi hujus generis omnis* will cease to exist if patients be persuaded to bite their food until its original taste disappears, and it is carried away by involuntary deglutition. The important point of the whole question seems to be this alkaline reduction of acid food before it passes on to meet subsequent digestive processes elsewhere which then become alternately acid and alkaline. In the first few months of infant life, when saliva is not secreted, Nature ordains that mammary secretion should be alkaline. With the eruption of teeth come an abundant flow of saliva and a synchronous infantile capacity for managing other foods. This flow of saliva depends on a thorough demand and use, to maintain its generous supply. It is just at this time that children learn to bolt their food, the demand fails, with a consequent detriment to the salivary glands, digestive processes, and the system generally.

A, B, C, and D were placed on an absolute milk diet: A drank his milk in the ordinary way and at the end of three days begged to discontinue the experiment owing to disgust at the monotony of the diet. B, C, and D continued the experiment for 17 days, insalivating the milk, but to a varying degree, B the least and D the most. Though D took most milk he excreted least solid egesta, C excreting less than B. Can one infer that increased insalivation of a non-starchy food ensures its better digestion and assimilation? Each subject took as much milk only as his appetite demanded, D taking the most, which never exceeded two litres daily. The weights of the subjects after the usual sudden drop of the first three days, remained remarkably even until the end of the experiment. B, C, and D all relished the diet and it satisfied the requirements of their appetites, but they experienced an increasing monotony.

As long ago as the seventeenth century, before the transformation of matter into energy by the animal organism known as metabolism was understood, the fact was recognised that by the lungs, kidneys, skin, and intestines,

[1] THE LANCET, Oct. 13th, 1900, p. 1079.

substances no longer useful to the organism were eliminated, the retention of which would prove harmful. The nature of these substances was unknown, but it was noted that however much the food was increased the weight of the body remained the same. In other words, a state of complete nutritive equilibrium was maintained. The following table contains the *résumé* of two experiments in which a state of complete nutritive equilibrium was maintained by individuals of about the same weight, on widely different quantities of food similar in quality. The subjects of the experiments were a laboratory assistant of Dr. Snyder of the United States Department of Agriculture and the writer. The experiment of the former was made primarily to show the relative digestibility of the several articles of diet—potatoes, eggs, milk, and cream :—

—	Dr. Snyder's experiment. Published in Bulletin 43.	Writer's experiment.
Age of subject	22 years.	30 years.
Duration of experiment	4¼ days.	5 days.
Number of meals	13	10
Weight at beginning	62·5 kilos.	57·3 kilos.
,, end	62·6 ,,	57·5 ,,
Potatoes (daily average)	1567·6 grammes.	159·4 grammes.
Eggs ,, ,, ...	411·08 ,,	124·7 ,,
Milk ,, ,, ...	710 c.c.	710 c.c.
Cream ,, ,, ...	237 ,,	237 ,,
Daily urine	1108 grammes.	1096 grammes.
Daily fæces	204 ,,	18·9 ,,

The daily diet of Dr. Snyder's subject consisted of three and a half pounds of potatoes, eight eggs, one and a half pints of milk, and half a pint of cream; the writer's diet of 12 ounces of solid food (like Luigi Cornaro's), consisting of three eggs and the remainder of the 12 ounces in potatoes and an equal quantity of similar liquid food to that taken by Dr. Snyder's subject. The exercise of the laboratory assistant comprised his daily routine of laboratory work, while that of the writer consisted of six sets of tennis or one and a half hours on horseback, with from an hour to an hour and a half's walk or climb daily, in addition to much reading and writing. In each case complete nutritive equilibrium was maintained, although the writer subsisted on three-seventeenths of the solid food taken by the other subject.

Again, cannot one infer that better assimilation and less waste resulted from the better preparation of the smaller quantity of food by insalivation? Surely, too, there must be less daily strain on the intestinal canal and body generally in getting rid of 18·9 grammes of inoffensive dry waste than in getting rid of 204 grammes of humid, decomposing, and offensive matter.

"Considerable importance has been attached to the normal action of the bacteria in the intestines; and it has even been supposed that the presence of bacteria is essential to life. Such a view has recently been shown to be erroneous by an elaborate and painstaking research carried out by Nuttall and Thierfelder who obtained ripe fœtal guinea-pigs by means of Cæsarean section carried out under strict antiseptic precautions. They introduced the animals immediately into an aseptic chamber through which a current of filtered air was aspirated and fed them hourly on sterilised milk day and night for over eight days." "The animals lived and throve and increased as much in weight as healthy normal animals subjected to a similar diet for the purpose of controlling the results. Microscopical examination at the end of the experiment showed that the alimentary canal contained no bacteria of any kind, nor could cultures of any kind be obtained from it." "The same authors in a subsequent paper described the extension of their research to vegetable food: this also was digested in the absence of bacteria. Under such conditions cellulose was not attacked. Hence they consider that the chief function of this material is to give bulk and proper consistency to the food so as to suit the conditions of herbivorous digestion."[3]

Now, inasmuch as bacterial digestion has no place in the animal economy, surely it can only occur at the expense of the organism? Can micro-organic action take place in the intestines without the production of toxins and the consequent absorption of these toxins into the blood? We know that the metabolism of a cell is determined by the general physical environment of the whole organism, by supplies of oxygen and water on nervous impulses, and, what chiefly concerns this argument, on the nature and amount of the pabulum supplied to it. This pabulum is derived from the alimentary canal. Are not even those of us who may be enjoying seemingly the best of health supplying to our tissues pabulum containing mild toxins, thus causing an increased katabolic action to occur in each individual cell of our bodies? Are not the blood elements floating in a plasma containing such toxins rendered less resistant, weaker, less capable of fulfilling their functions as carriers and combatants of disease? Are not their and our lives, in consequence, more painful and shorter than they need be? Would not the elimination of these toxins render us less liable to disease? And is not their presence an important element in predisposition to disease? When this reflex is restored micro-organisms get no further than the stomach. They are destroyed there by the acid gastric juices, then only stimulated to their full and normal secretion by the presence of a sufficiency of alkaline substance. Undigested matter having been eliminated, micro-organisms still existing in the intestines deprived of their means of subsistence decrease, and in time may cease to exist. The body no longer absorbs the toxins these produced. To this fact may be ascribed the increase of mental energy, the general physical betterment, the cessation of morbid cravings for food and drink, and of those of a sexual nature, which are noticed and experienced.

What has just been stated is based, not entirely on experimental evidence, but somewhat upon inference. The inference seems justified because the excreta, more especially of the intestines, but also of the kidneys and skin, become almost odourless and entirely inoffensive. The solid egesta are voided thickly covered with mucus, leaving the end of the bowel dry and clean. The sense of cleanliness can only then be appreciated to the full, for it is internal as well as external. Flatus is no longer produced. The urine is inoffensive and seems to be materially changed in quality as shown by chemical analysis. Uric acid, the chlorides, and, more markedly, aromatic sulphates are reduced in quantity. Owing to the deliberation in eating necessitated by this new habit, satiety occurs on the ingestion of considerably less food. By carefully studying one's self I believe it possible to cultivate an instinct which will regulate, not only the quantity but the quality of food that the body may need, and that in the normal health of a full-grown body no more food either in quantity or quality should be supplied than suffices to supply diurnal waste. Any excess must result in pathological processes. Although there results enhanced pleasure in the taking of all foods, rich and simple, and especially in the appreciation of good wine, the quantities of these foods and beverages that suffice fully to satisfy the appetite is much smaller than before, while there is a marked preference for the simpler kinds of foods. The writer now can imagine no more pleasurable meal than one consisting of good brown bread, eggs, butter, cheese, and cream. These, with fresh vegetables and a very little fruit, form his staple diet. This tendency and preference for simple foods is the general experience among those who have recovered the reflexes of deglutition. Following on the ingestion of a lessened quantity of food and on its better assimilation there is less waste—the egesta are voided less frequently, sometimes only once in from five to eight days. The lower bowel is not the reservoir it formerly was. So hæmorrhoids cease from troubling and constipation cannot exist. For this same reason the body at the beginning of the practice commences to approximate to its normal weight, increasing or decreasing as the individual's environment demands.

A few more words only need be said. It has been easy to state the results of experiments and observations; but the acquiring of this new reflex, while pursuing daily occupations, is not easy, and needs more than a little patience and more serious thought. The habits of a life-time cannot be changed in a few days or weeks. The shortest time in which the reflex has been re-established is four weeks and this only by avoiding conversation at meal-time and concentrating the attention on keeping the food in the mouth until complete alkaline reduction has taken place and sapidity has disappeared.

In closing, I wish to maintain as a fact, gentlemen, of the

[3] Schäfer's Text-book of Physiology, vol. i., p. 465.

truth of which you will only be convinced by actual experience, that by the restoration of this reflex and in complete dependence on its use, there lies true health, the establishment of a condition of staple nutrition and the possible abrogation of two great predisposing factors of disease—mal-assimilation and mal-nutrition. Unless there be among you, as in the cities of the plain, a parlous minority who possess this reflex and take their food as they ought, none of you are in the enjoyment of such health as you might have. A like punishment will be meted out to you as was visited on those cities, for you will all be consumed long before your day by the unnecessary combustion in your bodies caused by the circulation in them of toxins, the product of undigested or decomposing food. The writer, bearing in mind the warning suggested by the Frenchman, whose donkey died as soon as he had reduced his food to a single wisp of straw, finds that he is taking less and less food. While his mind is open as to his arriving at the final diet of Luigi Cornaro, yet it is easily conceivable that living a similar life of retirement in a placid environment it would be quite possible to do as he did. Hence the title of this paper and the queries at the commencement.

This paper proved of such interest that the discussion was continued beyond the usual time.

THURSDAY, AUGUST 1ST.

The proceedings in the section opened with the reading of a paper by Dr. R. J. ANDERSON, Professor of Natural History, Mineralogy, and Geology, Queen's College, Galway, on

Rotation of the Forearm.

Professor Anderson pointed out how exceedingly complicated the motions at the elbow-joint were and how, contrary to the sometime universally received opinion, the ulna did exhibit a certain amount of movement in rotation.

The PRESIDENT and Mr. T. S. ELLIS (Gloucester) made a few remarks, after which

The PRESIDENT called upon Dr. F. W. PAVY, F.R.S. (London), to read his paper on

Experimental Glycosuria.

The main points of Dr. Pavy's paper were as follows. Glycosuria might be taken as meaning the presence of sugar in the urine in quantity sufficient to be recognisable by the ordinarily employed rough methods of testing. Strictly speaking, however, normal urine contained a certain amount of sugar which escaped being revealed by rough testing but which was susceptible of recognition by more delicate methods of procedure. This was not taken into account in connexion with the consideration of glycosuria. Under normal circumstances, although carbohydrate matter might enter largely into the food ingested, no glycosuria was observed. It therefore followed that the system had the power of dealing with it in a manner to obviate its escape in an unutilised state, as sugar, with the urine, and he thought it might be said that physiologists now for the most part concurred with the view that it was placed in a position for utilisation and its escape as sugar thereby was prevented by the assimilative action of protoplasmic matter. Living protoplasm was endowed with the power as a property throughout nature of taking appropriate matter and incorporating it into itself. In this way absorbed alimentary carbohydrate became drawn into the proteid molecules of which protoplasm consisted—for the essential constituent of protoplasm was proteid—and subsequently subjected to the influence of conditions resulting in one way or other in utilisation. Assimilation thus stood as a preparatory step to utilisation, and when the absorbed carbohydrate of food was fully assimilated and afterwards properly turned to account no glycosuria occurred. Experimentally induced glycosuria carried them over a vast extent of ground. The conditions giving rise to it were multitudinous and diverse. Here Dr. Pavy gave a list of conditions leading artificially to the production of glycosuria. With such a chaotic list before them it was difficult to see upon what ground they stood with respect to the manner in which the several conditions acted in producing glycosuria. The best way of meeting the difficulty would be, it appeared to him, to look to the sources from which in connexion with the operations of life the eliminated sugar could be derived. Thus viewed the origin of the sugar of glycosuria could be shaped for consideration under four heads: (1) it might be derived from unassimilated carbohydrate; (2) it might be derived from stored glycogen abnormally passing into sugar which thereafter found its way into the urine; (3) a third source for the sugar of glycosuria was proteid matter (by an abnormal breaking-down process sugar became cleaved off and subsequently eliminated in the urine); and (4) the question of a fourth source from fat would be discussed. They knew that as a normal occurrence in the vegetable kingdom fat was extensively converted into carbohydrate. It was a matter for consideration if under abnormal conditions fat in the animal kingdom could constitute a source of sugar in connexion with glycosuria.

Glycosuria from unassimilated carbohydrate.—Under ordinary circumstances carbohydrate was ingested and nothing was seen of it afterwards. After absorption it was assimilated or put into a condition for passing to utilisation, and the latent energy which it contained was given out in one form or other of force. Failing to follow this course, it remained in the form of sugar and was eliminated as such with the urine instead of being consumed and yielding energy to the system. Taken to an ordinary extent under healthy conditions, observation showed that the urine remained uninfluenced,[1] and the same might practically be said to apply to the systematic blood, so that the blood and urine stood in this respect in parallel positions. By excessive ingestion of carbohydrates, however, a glycosuric state might be induced. Dr. Pavy had recognised this fact at the outset of his experimental research work. Others had obtained confirmatory testimony, and it might be looked upon as an established fact that glycosuria was producible in the healthy state by an excessive ingestion of carbohydrate matter which might be taken as meaning that the assimilative power was not unlimited and that it could be over-stepped. Seeing that glycosuria was susceptible of being produced by sugar introduced into the alimentary canal it might naturally be expected to follow intravenous and subcutaneous injections; and upon this point, without entering into particulars regarding the specific differences for the various sugars, he needed only to say that when administered in this way small quantities sufficed to throw sugar into the urine. It could definitely be said that one important direction in which alimentary carbohydrate passed was into fat. In the fattening of animals, which constituted an extensive industry, they had an illustration of this application. As he had elsewhere pointed out, he believed that this conversion occurrred in the villi, which were in continuity with the lacteal system, and in the liver. Both stood in a position to block the passage of sugar into the general circulation. Another important application of carbohydrate was into the construction of proteid. Failing to be transformed into fat or synthesised into proteid the carbohydrate would reach the portal system as sugar and thence would be conveyed to the liver. Here transformation into glycogen occurred. By the cells of the liver the sugar was picked out and its molecules were dehydrated and, as it was termed, condensed or converted from the monosaccharid to the polysaccharid state. This must be regarded as the result ot protoplasmic action, presumably comparable to that which led to the deposition of starch, cellulose, &c., in the vegetable organism, and, like starch, glycogen occupied the position of a convenient storage or reserve material. They learnt then as regards the point under consideration that carbohydrate became disposed of within the system by the assimilative influence of protoplasm, and that whatever was not so disposed of was met with in the general circulation as sugar and thence constituted a source of glycosuria proportionate in degree to the glycæmia existing.

Glycosuria from the abnormal transformation of stored glycogen into sugar.—Dr. Pavy had hitherto been giving attention to glycosuria due to sugar that had not been dealt with by the system. He now passed to glycosuria due to sugar drawn from assimilated carbohydrate. Glycogen was one issue of assimilative action. It consisted of the small molecules of which sugar was composed, condensed, or built together into a large-sized molecule—a kind of synthesis in reality, with an accompanying setting free of a definite amount of water—and was a product derived from the operations of living protoplasm. By enzymic and other means it was readily broken down and hydrolysed into sugar molecules from which it was constructed, and, with the occurrence of this phenomenon the sugar of glycosuria might be produced. The liver and the muscles were the chief seats of glycogen accumulation. Much of a

[1] Breul: Archiv für Experimentelle Pathologie, 40, 1898.

definite nature could not be said about the precise condition in which glycogen existed further than that it was so circumstanced as to form a store, which might be held and utilised as occasion might require. He had suggested that the glycogen existed "in feeble combination with nitrogenous matter." The proposition advanced by Nerking was that only the glycogen that was susceptible of extraction with water was in the free state and that the rest was in combination, apparently in a glucoside-like body, with proteid. In illustration of what was here spoken of—and it supplied them with a representation of the modern views of the chemistry of life—he might refer to what was found to occur in the case of the oxidation of tyrosine in the living body to benzoic acid and the subsequent union of this with glycene to form hippuric acid. Tyrosine consisted of a benzene ring with a fatty side chain linked to it. By oxidation the elements of the side chain became removed leaving the benzoic acid with the benzene ring intact. This afterwards uniting with glycene met with in the body forms hippuric acid and water which became eliminated with the urine. Extending this line of action to carbohydrate it was believed that carbohydrate groups existed linked on as side chains to the nitrogenous nucleus and that these side chains might be oxidised off or otherwise detached without disturbing the nucleus itself. Glycogen, as was well known, was most readily transformable into sugar in the presence of a diastatic enzyme, and what took place in the liver immediately after death showed that there was no lack of enzyme existing or producible. After death, for instance, sugar was produced in the liver in a manner that, it might be taken, could not possibly be occurring during life, and if somatic death was occasioned in such a way as to permit of the circulation being maintained by artificial respiration a glycosuric state followed.

Glycosuria arising from the disruption of proteid with a liberation of sugar.—In this form of glycosuria originating from assimilated carbohydrate it might be considered that the carbohydrate was not to a similar extent free to pass into sugar, as in the form that had been dealt with. When the carbohydrate was bound up in, and thus constituted an integral part of, the proteid molecule the molecule must as a preliminary step be broken down and the carbohydrate liberated before it could present itself to their cognisance as sugar. As long as it was contained within the molecule it was virtually lost to view and could only become manifest to them again on being set free. Thus it happened that a sugar and nitrogen elimination occurred as a result of proteid disintegration, and when there was no other source than proteid disintegration for the sugar eliminated the two were found to hold a definite relation the one to the other. Pancreatic and phloridzin diabetes were forms of diabetes which were accompanied with proteid disintegration as a source of the eliminated sugar. They at the same time also cleared away as urinary sugar the stored glycogen and the carbohydrate linked as side chains to the proteid molecule. When all this had been effected in the starved animal the nucleus of the molecule next went and then it was that the definite relation between the eliminated dextrose and nitrogen was observed. The first effect then in connexion with pancreatic and phloridzin diabetes was that looking at the dextrose and nitrogen elimination the former stood in high relation to the latter. This lasted as long as there was a source for dextrose other than the carbohydrate intimately locked up in the proteid molecule. Subsequently in the starved animal the proportion of dextrose fell and ultimately it held a pretty constant relation of a little under 3 to 1 of nitrogen. The source of dextrose was now breaking down proteid matter which resulted in the elimination of both the carbohydrate and nitrogenous component parts. The ratio of eliminated dextrose to nitrogen would thus give an insight into the relation which they held in the original proteid, and as proteid contained about 16 per cent. of nitrogen calculation based upon a 3 to 1 ratio of elimination gave about 50 per cent. as the amount of carbohydrate contained in the proteid molecule. Some had worked out the amount as standing a little higher, but whatever the precise amount it was seen that proteid constituted an important source of sugar in connexion with glycosuria. The glycosuria and concomitant conditions attending removal of the pancreas stood in accord in all particulars with diabetes as it occurred in the human subject. Glycæmia was an antecedent of the glycosuria, and if the escape of sugar was prevented—as by extirpation of the kidneys or by ligaturing the ureters—the sugar might rise to a very large amount in the blood. Phloridzin glycosuria stood in a strikingly different position. Phloridzin similarly led to the elimination of sugar by attacking glycogen and proteid, but the results of experimental observation were not reconcilable with the glycosuria being preceded by glycæmia. The kidney seemed to be in some way or other concerned in the production of the sugar, and although the close attention of numerous investigators had been given to the subject it could not yet be said that the bottom of it had been reached.

The question of glycosuria through the medium of fat.—They knew that fat was producible by both the vegetable and animal organisms from carbohydrate and that the production took place upon a large scale in both kingdoms of nature. They knew also that, as was shown in the growth of the oily seeds, fat constituted a source of carbohydrate in the vegetable kingdom. Analogy was therefore suggestive that in the animal organism the possibility existed that sugar might be producible from fat. The point had been mooted and discussed, but it must be said that nothing in the shape of tangible evidence had been yet adduced to connect glycosuria with fat as a source. Certainly in the diabetic subject, instead of fat consumed as food producing an increase of sugar elimination it seemed to act beneficially by supplying oxidisable material that might save body-stuff from destruction. At the beginning he had given a lengthy list of conditions productive of glycosuria. Looked at individually nothing in common was discernible to account for their action. Indeed, they constituted a most incongruous group and left them in a mystified state with regard to them. Viewed, however, by the light of the line of consideration that had been adopted there was nothing inconsistent with very varied conditions giving rise to a similar result. The position of matters might be expressed in a few words. Wrong metabolism was regarded as the source of glycosuria. Under the right course of events the carbohydrate matter of food was assimilated by protoplasmic action and thus placed in the required position for contributing to utilisation. That which was not assimilated and remained in the free state passed as sugar through the system and escaped as waste material with the urine. That which had been been assimilated might as the result of wrong metabolism again pass into sugar and constitute a source of glycosuria. They had wrong chemistry to deal with and very diverse conditions might give rise to the wrong result that occurred.

Professor W. H. THOMPSON (Belfast) said that most forms of glycosuria might be referred to one of four causes. 1. Primary excess of sugar in the blood, of which form that resulting from enemata of glucose was especially remarkable, the path of absorption being through the hæmorrhoidal veins and so escaping the liver. 2. Diminished metabolism in tissues. 3. Damaged glycogenic function of the liver, of which form that resulting from the removal of the pancreas was most important. This might be explained as follows: (*a*) some substance was removed with the pancreas which was necessary to the glycogenic function of this organ—this was not contained in the pancreatic juice; or (*b*) the result of the loss of the pancreatic juice was that a poisonous substance was produced in the alimentary tract which on reaching the liver produced disturbance of its function but which normally would be neutralised by some constituent of the internal secretion of the pancreas. He had proved that feeding with sufficient quantities of argonin, a basic product forming part of the anti-peptone part of the end product of pancreatic proteolysis, would produce glycosuria. 4. Renal glycosuria, such as that produced by phloridzin and phloretin, in which there was no hyperglycæmia, not even when the kidneys were extirpated or the ureters tied, showed probably an action on both the liver and the kidney.

Professor VAUGHAN HARLEY'S (London) contribution to the discussion was read by the secretary of the section. Glycosuria was, he said, due to one of three causes. 1. Over-production of sugar in the organism, such as the hyperglycæmia produced by puncture of the medulla oblongata and the various forms of alimentary hyperglycæmia, of which latter an illustrative case was given showing that the correct treatment of this form consisted in proper diet, containing a suitable quantity of carbohydrate material. 2. Mal-assimilation of sugar by the tissues—e.g., the hyperglycæmia produced by removal of the pancreas in dogs. 3. Anomalous forms—e.g., that produced by the administration of phloridzin, which was due to increased permeability of the kidney.

Sir W. H. BROADBENT (London) said that the mere presence

of sugar in the urine was of secondary importance in glycosuria, the mal-assimilation by the tissues was a much larger point. If the liver were the chief organ at fault, why was there not glycosuria in every case of advanced cirrhosis of that organ?

Professor R. J. ANDERSON made some remarks.

Dr. PAVY then replied, agreeing with Sir W. H. Broadbent that the liver had little to do with many cases of glycosuria; thus it might be entirely cut off from the circulation, after which the administration of phloridzin still produced glycosuria. The early stages of many cases of diabetes were no doubt due to mal-assimilation of carbohydrate material; in these the later stages always went beyond this and were essentially due to a breaking-down process of the tissues themselves.

Mr. N. BISHOP HARMAN (London) read a paper on

Socia Thymi Cervicalis and Thymus Accessorius.

The former condition, he said, was found in a full-timed fœtus; a left lateral prolongation of the thymus extended into the neck to the angle of the jaw. It was fleshy and showed the histology usual to the thymus. It had a special blood-supply. The occurrence was identical with the normal symmetrical prolongation in birds and lambs and probably showed the retention of an original connexion of the gland mass with its site of origin. The vagus encircled part of the socia which might represent the relation of the lateral branches of the vagus to the thymic dorsal extension of the gill-pouch. The latter condition was of a case similar to that described by Henle. Its significance was discussed. Embryologists placed the origin of the human thymus from gill-pouch III. De Meuron showed that in the passage from lower to higher animals the extent of the origin was diminished—e.g., rays used five pouches, sharks four, and sheep two, three, and four, and in the sheep the derivative of the fourth was a small portion similar to this accessory thymus. This condition in man might indicate a possible origin from the third and fourth pouches.

Mr. HARMAN also showed a young Hottentot skull obtained from Bulawayo. The facial and orbital regions showed conditions which appeared to be either a very rare condition of the processus nasalus, owing to a marked sutura notha or else the presence of enormous facial lacrymal bones. Besides there were an absence of orbital lacrymals and the presence of prefrontal ossicles. The internasal suture was closed and the capacity and other features of the skull were of a low type. Age under 21 years.

The PRESIDENT said that the condition was of great interest; he thought that it was due to an accentuation of the sutura notha.

PATHOLOGY AND BACTERIOLOGY.

WEDNESDAY, JULY 31ST.

Presidential Address.

Dr. J. W. WASHBOURN (London) delivered his presidential address on

Some of the Principal Diseases Met with among the Troops in South Africa during the Present War.

The Imperial Yeomanry Hospital at Pretoria, of which Dr. Washbourn was in medical charge, was opened in August, 1900, and between then and the end of April, 1901, 3702 cases in all were treated in it. Of these 2853 were medical and 849 were surgical. The medical cases included 546 cases of enteric fever, 379 of dysentery, 340 of debility, 296 of rheumatism, 258 of malaria, 187 of simple continued fever, 152 of diarrhœa, 93 of jaundice, 71 of influenza, 70 of tonsillitis, 43 of bronchitis, two of acute rheumatic fever, whilst the remaining 405 cases included various diseases, none of which were numerically important. If the cases of jaundice, enteric fever, dysentery, and diarrhœa were added together it would be seen that they included 1170 cases out of the total of 2853 treated. Dr. Washbourn's surgical colleagues in the hospital had told him that amongst their cases diseases of the rectum, especially hæmorrhoids, occupied a very prominent position. On the other hand, diseases of the lungs were exceptionally rare, only 43 cases of bronchitis and an occasional case of pneumonia were admitted. From these facts it might be concluded that in South Africa the food was bad and the air was good. The diseases of the rectum were, he thought, no doubt due to improper food—the absence of vegetables, for example—whilst the other intestinal diseases were due to contamination of food with specific germs. Under proper sanitary conditions enteric fever, dysentery, and probably diarrhœa, would diminish enormously; and had there been a proper sanitary corps, under the supervision of a good sanitary medical officer, to look after the standing camps, he believed that a large proportion of the cases of these diseases would have been avoided. Great difficulties in the way of sanitary measures certainly existed when the troops were on trek, but they did not exist when troops were in a standing camp; everyone with experience in campaigning knew that sickness did not develop among troops on the march but arose soon after they were stationed in a standing camp. And it was under the latter condition that sanitary measures could be, and ought to be, enforced. Next in numerical importance to intestinal diseases came cases of debility; these did not require any special treatment, they were simply cases of men requiring a few days' rest which they could not obtain whilst with their regiment. Next in numerical importance came cases of chronic muscular rheumatism, of which 296 were treated. Only two cases of definite rheumatic fever were admitted, and both patients had had the disease before in England. Altogether Dr. Washbourn had only seen a few cases of rheumatic fever in South Africa, and in every single case the patient had suffered from the disease before he landed. The rarity of acute rheumatic fever and the frequent occurrence of chronic rheumatism showed that the two diseases had no etiological connexion. He could not help thinking that this muscular rheumatism was more nearly related to gout than to rheumatic fever, and he was inclined to attribute it to the nature of the men's food and especially to the absence of fresh vegetables. Then there were a large number of cases of malaria, some, perhaps, incorrectly diagnosed, for many of them went into hospital after the fever had subsided and without characteristic symptoms to guide. In a number of cases the malarial parasite was found; but in other cases of undoubted malaria repeated examination failed to discover it. In all these latter cases quinine had already been administered and this was no doubt the cause of the failure. Malaria was by no means common all over South Africa, but was limited to well-defined areas. It was common in the district north of Pretoria, beginning in the Megaliesberg valley and extending all through the bush veldt. It was also common in the low country east of Waterval Boven; it did not occur in the Karroo or in the Orange River Colony. There were in all 93 cases of jaundice, 71 out of these cases being admitted in January, February, and March. The disease ran a definite course. There was nausea, which might be accompanied by vomiting, or pain to the right side of the epigastrium; the bowels might be regular, loose, or constipated; the temperature might remain normal or there might be moderate pyrexia. In three or four days the jaundice would appear and the stools became clay-coloured. As the jaundice, which was usually intense, appeared the other symptoms usually subsided. After the jaundice had lasted a few days it disappeared and the patient recovered. The symptoms suggested an inflammation of the duodenum, leading to blocking of the bile duct. The jaundice was, therefore, a more or less accidental sequela and not the cause of the symptoms. Dr. Washbourn had, in fact, seen a number of cases with all the initial symptoms but without the subsequent jaundice. The occurrence of the disease in epidemic form pointed to some infective agency, but none had yet been actually discovered. In spite of the intense heat in South Africa Dr. Washbourn had never seen a well-marked case of heat-stroke, and various inquiries amongst the medical officers, who had been on trek with the columns failed to elicit the record of a single case. This showed that something more than the actual heat of the sun was required for the production of heat-stroke, and supported the view that the disease was due to some infection. There were 152 cases of diarrhœa admitted, but the figures gave a very feeble idea of the prevalence of the disease, as they included only such cases as were severe enough to necessitate admission into hospital. Almost everybody after arriving in South Africa was attacked with gastro-enteritis of a more or less severe type. The temperature might be raised for a short period, but usually there was no fever. The motions were liquid and very occasionally contained a small quantity of blood and slime. The symptoms passed off in a day or two as a rule, but the diarrhœa might persist for some weeks without otherwise affecting the health of the patient. The disease

appeared to be allied to the summer diarrhœa which occurred in England; and from the incidence of the disease when dysentery was absent Dr. Washbourn felt sure that the two diseases had no etiological relationship. Of true dysentery 379 cases were admitted and there were nine deaths, a mortality of 1·86 per cent. The cases might be divided into two types. In the first type there were the passage of blood and slime and a fever lasting about six days. On the subsidence of the fever the motions gradually assumed their natural character and the patient recovered. This was the usual course of the disease; death might, however, ensue during the febrile stage or a few days after the fever had subsided. In the second type the temperature did not fall at the end of six days, but it continued for two or three weeks longer. During the latter period blood and slime disappeared from the motions, which became liquid, and the symptoms were much more like those of enteric fever than those of dysentery. The post-mortem features of South African dysentery were then described. Dr. Washbourn had little doubt but that the South African dysentery was the same disease as the asylum dysentery described by Dr. F. W. Mott and Dr. Durham in this country. He felt sure that it was not due to amœbæ, for he had invariably failed to find them in the motions. Abscess of the liver was a rare complication of South African dysentery. In one case which occurred both streptococci and a bacillus belonging to the coli group were found; there were no amœbæ in the pus. There were 546 cases of enteric fever with 50 deaths, a mortality of 9·1 per cent. The main features of the type of the disease which he met with were that constipation was much more common than diarrhœa and that phlebitis was exceptionally common. In cases which Dr. Washbourn had observed during the incubation period, he had frequently noticed a preliminary febrile attack which subsided a day or two before the onset of the enteric fever, and he thought that this was some indication of the changes which they knew must be taking place during incubation. He did not think that inoculation in any way modified the course of an attack and he doubted whether it had any important practical influence upon the incidence of the disease. The cases of simple continued fever admitted were simply cases in which there was some malaise with a moderate pyrexia; possibly some of them were abortive attacks of some specific disease and some of them might be slight attacks of influenza, of which latter 71 definite cases were diagnosed. Finally, Dr. Washbourn emphasised the influence of "a chill" as determining the occurrence of an attack of diarrhœa; it was an undoubted predisposing cause. A chill which in England would probably give rise to an attack of nasal catarrh, in South Africa would cause an intestinal catarrh; the difference was probably due to the prevalence of the bacteria causing the respective conditions.

Professor T. CLIFFORD ALLBUTT (Cambridge) said that he responded with great pleasure to the opportunity given him of appreciating the introductory address of their President. He particularly wished to refer to what Dr. Washbourn had said as to the preliminary rise of temperature before the onset of enteric fever. He himself had many times noticed the occurrence, but he had never published his observations, as he had kept no definite record of cases. As, however, Dr. Washbourn had called their attention to the point, he himself was encouraged to give his own experience, which was quite in accord with what Dr. Washbourn had told them on the point.

Lymphadenoma.

Professor J. MICHELL CLARKE (Bristol) then opened a discussion on Lymphadenoma. The term was defined as including those diseases which were characterised by overgrowth of lymphoid tissue or which gave rise to growths closely resembling in structure the lymphatic glands. The points of resemblance between lymphadenoma and an infective process were insisted on and its possible relationship to tuberculosis, to the sarcomata, and to lymphatic leukæmia was discussed. Professor Michell Clarke concluded with a reference to the condition described as status lymphaticus, or lymphatism, in which there was a partial or general hyperplasia of lymphatic glands, especially the pharyngeal, thoracic, and abdominal; enlargement of the spleen and tonsils also occurred. There was frequently a remarkable hyperplasia of the intestinal lymphatics, "individual glands standing out like peas," to borrow Osler's description. The cause of death in such cases was now attributed by Paltauf and others to deficient powers of resistance, and not, as formerly, to coincident enlargement of the thymus.

In the discussion which followed Mr. H. J. STILES (Edinburgh), Dr. J. H. BRYANT (London), the PRESIDENT, and others took part, and a communication on the subject rom Dr. LOVELL GULLAND (Edinburgh) was read by Dr. W. S. LAZARUS-BARLOW (London). The speakers were generally in accord with the views which Professor Michell Clarke had laid down, and the possible relationship between tuberculosis and some cases of lymphadenoma was emphasised by several.

Dr. J. W. H. EYRE (London) read a communication on a Form of Centrifuge which he had devised for dealing with large quantities of milk for bacteriological examination; using hand-power a speed of 2500 revolutions per minute was readily attained and with electric power a greater speed could be reached.—The paper was discussed by the PRESIDENT, Dr. LAZARUS-BARLOW, Dr. J. O. SYMES (Bristol), and Mr. A. G. R. FOULERTON (London).

The next paper read was by Dr. SYMES on the Bacteriological Examination of the Blood. Dr. Symes pointed out the advantages of the method, now in general use, of drawing the blood for examination directly from a vein. A considerable percentage of Dr. Symes's examinations in infective diseases had given positive results, cultures of streptococci, staphylococcus albus, and other organisms having been obtained from cases of puerperal septicæmia, ulcerative endocarditis, and in other conditions.—This paper was followed by a very thorough discussion, in which the PRESIDENT, Dr. A. C. F. RABAGLIATI (Bradford), Dr. E. G. TREVITHICK (Cheltenham), Dr. DALAND (Philadelphia), Dr. EYRE, and Dr. O. F. GRÜNBAUM (London) considered the technique employed and contributed altogether a considerable number of cases in which positive cultures had been obtained from the blood during life.

Dr. J. J. DOUGLAS (London) read a paper on the Arrangement of Nissl's Bodies in Nerve Cells. It was pointed out that the arrangement of the chromatophile granules, as shown by Nissl's method, varied in cells from different parts of the central nervous system. In the cells of the anterior cornua the chromatophilic granules were aggregated in very definite masses which were distributed in a more or less uniform manner throughout the cell protoplasm. In the cells of Clarke's column, on the other hand, the Nissl bodies had a more or less distinctly peripheral distribution, large aggregations of the bodies being found at the periphery, whilst the peri-nuclear area was comparatively free from them. Some excellent micro-photographs in support of this were shown, which clearly demonstrated the points raised in the paper.

OPHTHALMOLOGY.

WEDNESDAY, JULY 31ST.

Presidential Address.

Mr. W. H. JESSOP (London) opened the first meeting of the section with an address in which he alluded to his boyhood in Cheltenham and the establishment of the local eye hospital by his father who was a schoolfellow of Mr. Henry Power. He then proceeded to speak of the pathology of glioma, basing his remarks on six cases which had come under his notice in the past two years. Five specimens were exhibited in different stages and in two cases both eyes were involved. Mr. Jessop gave a minute description of the cases and specimens, the growth being regarded by German pathologists as neuro-epithelioma (Wintersteiner). They assumed at different periods three distinct stages: (1) early, exhibiting microscopically the rosette appearance characteristic of the growth and only slight degeneration; (2) middle, glaucoma—vascular development with columnar cells some 30 deep along the vessels and degeneration beyond; and (3) late—shrinkage of vessels, almost complete degeneration of the new growth, and rapid extension along the optic nerve. After this the growth became extra-ocular, assumed the character of a round-celled sarcoma, with marked malignancy showing itself by recurrence and metastasis. In the intra-ocular condition the malignancy was limited. The two cases in which the eye was removed in the early stage remained well after two years and the patient would be practically safe after one year.

Mr. PRIESTLEY SMITH (Birmingham) opened the discussion on

Myopia,

which might be either stationary or progressive, with damage to the tissues of the eye and diminution of vision. The important question was, How were they to distinguish a

simple from a pernicious myopia? The speaker exhibited a reduced chart representing the degree and progress of 100 cases, which showed that there was no actual dividing line between the two varieties, but that the chief progress took place during adolescence. The chief data in regard to prognosis were:—1. Age.—The younger the patient the more likely the disease was to be progressive. The tendency was most marked during the period of growth 15 to 25 years, after which it ceased. 2. Degree.—The higher the myopia the more likely it was to increase, especially in young subjects. In adults no forecast could be made. 3. Condition of choroid and retina.—These changes were more marked in the pernicious cases. They included myopic crescent, thinning of the choroid, pigmentation of the retina, and displacement of the disc. Diffuse changes from stretching and vascular disturbance occurred later. Syphilis caused sclero-choroiditis. Congestion and inflammation were important factors. 4. Constitution.—Malnutrition and lactation tended to make the disease progressive, as also did chronic constitutional disease and high arterial tension. 5. Heredity.—Inherited myopia was often simple, but there was no immunity from progressive myopia. 6. Occupation.—Any form of close work was harmful. As to treatment, all cases of myopia should be suspected, especially in the young, of being progressive till time proved the contrary and should be treated accordingly. There should be re-examination in six months and one year. Prevention of progressive myopia was more helpful than attempts at curing.

Mr. A. S. PERCIVAL (Newcastle-on-Tyne) thought the contractions of extra-ocular muscles important factors in squeezing the eye and causing elongation. He recommended reading in such a position as obviated inclination of the eyes, especially downwards, and thought he could trace arrest of progressive myopia to this means in four cases.

Mr. HENRY POWER (London) recommended work or reading only in a good light—not at all at night. The head should be in the upright position. There should be no stooping. Good diet should be given in childhood, especially when at school. No work should be done before food.

Dr. DARIER mentioned traumatic astigmatism or myopia of from four to eight dioptrics from a blow on the cornea causing overstretching of the suspensory ligament of the lens. Contrarily, pressure on the eye appears to help vision in hypermetropia and presbyopia. Massage of the globe improved the circulation and tension of the eye and so increased vision. Gentle pressure on the cornea through the lids should be applied daily for from two to three weeks.

Dr. A. H. THOMPSON (London) thought that a well-defined crescent, single, double, or treble, with choroiditis at the edge and aching in the eye were unfavourable signs.

Mr. H. EALES (Birmingham) said that power of accommodation varied much with glasses in myopia; some high grades had wide range, while others of low degree had a very narrow one. He recommended full correction and avoidance of close work. Painful convergence for near objects could be remedied by prisms and more particularly by proper centreing of glasses. Spectacle frames were usually made two and a half inches wide, whereas some patients had as much as three inches between the centres of their pupils.

Dr. J. BOWER (Cheltenham) said that bad light and too close position of a book or work most needed correction. He deprecated gymnastics which involved hanging the head, as trapeze exercise. Patients with low myopia (three dioptrics) could dispense with glasses for distance, but those with higher grades should wear them continuously.

Dr. E. E. MADDOX (Bournemouth) considered that it was more necessary to avoid fatigue of the eyes than accommodation or convergence. The higher the myopia the greater the strain on the tunics owing to the larger surface exposed to expansive pressure. Any tendency to look through the edge of the glasses called for full correction. He recommended gentle massage of the sclero-corneal junction as having a good effect on tension by aiding the transfusion of fluid. Convergence rarely occurred without looking down, due to the action of the inferior rectus, which should be avoided.

Dr. A. BRONNER (Bradford) asked whether myopia when progressive could be arrested by glasses. Hæmorrhages in women usually resulted from vascular change during menstruation. In men syphilis was the cause.

Dr. R. D. BATTEN (London) thought that all cases were more or less progressive; he attached much importance to tilting of the disc and distortion of the vessels, with thinning of the anterior part of the sclerotic and occurrence of astigmatism.

Mr. TATHAM THOMPSON (Cardiff) said that myopia was not often recognised in infancy. The habit of holding a book close should be broken, whether before or after correction by glasses.

Mr. PRIESTLEY SMITH, in reply, said no distinct line existed between innocent and pernicious myopia. He had given his views on treatment fully in the *Ophthalmic Review* for 1890. Muscæ volitantes were only of importance when apparent to the observer. Most people could see them themselves. He thought that the observation made by Dr. Darier was very interesting and important, but pressure could not be applied safely in all cases.

Major H. HERBERT, I.M.S. communicated a paper on

Superficial Punctate Keratitis,

describing a vesicular corneal eruption on the cornea, occurring during the rainy season in Bombay, associated with micro-organisms and lasting from two to three weeks in young adults.—Mr. DEVEREUX MARSHALL (London), Major DRAKE BROCKMAN, Mr. C. BLAIR (London), and the PRESIDENT spoke.—It was recommended that the term "keratitis punctata" at present used for the effects of cyclitis on Descemet's membrane should be abolished.

Mr. TATHAM THOMPSON described as unique a case of Symmetrical Bullous Eruption around the Cornea in Both Eyes with Acute Photophobia and Congestion lasting three weeks and cured by formol, 1 in 5000, after application of atropine and cocaine.—The PRESIDENT mentioned other cases of greater severity and duration.

Mr. C. BLAIR described an Unusual Form of Keratitis associated with Papular and Pustular Skin Eruption. The attacks lasted a few days twice a year.—Mr. D. MARSHALL suggested tuberculosis.

Mr. PERCIVAL described the Application of Periscopic Glasses to Give Lateral Vision without Rotating the Head.—The PRESIDENT, Dr. MADDOX, and Mr. TATHAM THOMPSON expressed their appreciation of the method. The expense of the glasses was increased from 50 to 100 per cent.

DISEASES OF CHILDREN.

WEDNESDAY, JULY 31ST.

The PRESIDENT, Mr. FREDERIC EVE (London), after a few introductory remarks, called upon

Mr. BERNARD PITTS (London) to open a discussion upon the subject of

The Treatment of Intussusception.

In the course of his paper Mr. Pitts laid before the section a complete list of all the cases of intussusception in St. Thomas's Hospital (on the surgical side) from 1875 to 1900 inclusive. He pointed out that distension of the bowel might be tried, if the case was very recent, under an anæsthetic and holding oneself in readiness to do an abdominal section, if necessary, at once. A severe case should at once be explored, without any previous inflation, as this only added to the shock. The intussusception should be brought outside the wound, as then the condition could be examined. If reduction were impossible resection of the bowel should be done. If gangrene were present the case was almost hopeless, as prolonged operations were not well borne by children. The sooner the child was placed in the hospital after the symptoms appeared the better. At the first onset it seemed reasonable to inflate the large bowel, but it was never certain that inflation completely reduced the swelling, and the uncertainty as to the exact condition of the bowel made it better for the surgeon to see and to handle it. The swelling of the mesenteric glands which occurred in children in intussusception, hindered reduction. Inflation might be used as a preliminary to operation. The risk of shock must be minimised by all possible means in a young child. It was better not to let the small bowel escape out of the incision, so if there were very much distension he would make a small opening into it and let out the contents—i.e., gas—and then sew it up. A great danger of reduction was the chance of splitting the coat of the bowel. If reduction were very difficult he would open the sheath and reduce by a finger inside the bowel. If this were impossible he would resect the bowel *in situ*. He then referred to a diagram of a case of ileo-colic intussusception where the portion inside the colon was removed, and to another where there was invagination of the appendix. In a

third case the small bowel was implanted into the large one above the old ileo-cæcal valve. In a gangrenous case 24 inches of bowel were removed. Saline injections were of great service. The suturing of the abdominal wound should be very thorough and the stitches should be left in for a long time so as to have no prolapse of the intestines. According to the list of cases chronic intussusception was quite rare in children. In fatal cases the temperature frequently ran up at once after operation to a great height from no very certain cause. In cases brought to hospital it was better to operate at once and to try inflation also so as to get the bowel back to near where the incision should be made. In gangrenous cases the ends of the bowel should be brought outside the body and continuity should be established later. If very extensive, resection and restored continuity with Paul's buttons should be done at once.

The PRESIDENT then pointed out the various subjects for discussion.

Mr. D'ARCY POWER (London) presented a table of cases occurring at St. Bartholomew's Hospital and the Victoria Hospital for Children, Chelsea, during the years 1891–1900. Of 65 cases the total recoveries were 23 and the total deaths were 42. Thirty cases presented points of especial interest as follows: two patients recovered spontaneously, one acute and one chronic case; one recovered from a triple intussusception; one died from ileus after reduction; one had intestinal obstruction due to adhesions after the abdominal section; two were too ill to operate upon; one had such extensive adhesions that nothing could be done; three cases recurred repeatedly after apparent reduction by irrigation; in three cases the intussusception was overlooked at the operation and was found post mortem; in one case there was no intussusception; 15 cases needed excision of the bowel; in seven cases an artificial anus was made—all fatal; in five cases Murphy's button was used—four patients died and one recovered; in two cases Maunsell's operation was performed—both patients died; and in one case a circular enterorrhaphy was done—the patient died. Mr. Power was a whole-hearted advocate of the earliest possible abdominal section and he gave details of cases which had brought him to this opinion. Irrigation or inflation might be tried before the operating surgeon could arrive and was also useful to reduce the size of the tumour before operating.

Mr. MCADAM ECCLES (London) advocated early diagnosis and immediate laparotomy if circumstances permitted it; the earlier the operation the less danger of septic absorption—this might explain the high temperature in fatal cases. There were three kinds of temperature after these operations: (1) normal, which went on all right; (2) low, where shock was the cause; and (3) high, where there was probably absorption of toxic products from the surface of the intussuscepted bowel; so he always washed the bowel carefully with biniodide of mercury. Irrigation or inflation should always be under an anæsthetic. It was very hard to say whether reduction was successful. Everything should be ready for an operation so as to lose no time. The sutures should be close and numerous through the whole thickness of the abdominal wall and be left in for a fortnight. The occurrence of intussusception was probably due to bad feeding, so the suturing was most important. In one case irrigation done after the tumour was outside the body was a great help in reduction. The child should not take the breast for 24 hours after operation, but the mother's milk should be drawn off and given in a spoon. To avoid shock an injection of two ounces of milk at 105° F. into the rectum after operation should be made. Small doses of opium were most useful to ensure quietude after operation. The recurrence years afterwards might be due to a thickening of the bowel wall.

Mr. A. H. TUBBY (London) strongly supported an abdominal operation forthwith as did

Mr. F. C. ABBOTT (London) who suggested that the septic absorption took place from the inner surface of the affected bowel. He quoted a case of tuberculous peritonitis closely simulating intussusception. He used two layers of sutures and injected a saline solution at the end of operations to prevent shock.

Mr. J. P. BUSH (Clifton) also advocated early operation, as the intestine of children would only stand a very little water-pressure. The less washing out the better, and he preferred the operation, as suggested, in two stages.

Dr. SINCLAIR WHITE (Sheffield) described three cases which exhibited hyperpyrexia and dealt with the question of inflation *versus* operation for practitioners not used to such operations. He preferred to protect the small bowel if it protruded rather than to open it.

Dr. LEWIS MARSHALL (Nottingham) pressed for early operation, for close and thorough suturing, and for the use of strychnine to prevent shock.

Mr. C. F. CUTHBERT (Gloucester) was glad that there was no uncertainty as to the need for early operation in these cases.

Dr. MANSEL SYMPSON (Lincoln) urged the advisability of early operation and gave details of a case where distension of the bowel was successful after replacing the portion extruded at the anus. He also dealt with the question of hyperpyrexia and the difficulty of closing an artificial anus.

Dr. A. G. FORSTER (Cheltenham) advised opening the gut to relieve distension.

Professor MCPHEDRAN (Toronto) advocated early operation.

Dr. BLACKADER (Montreal) advocated the same.

Dr. F. E. BATTEN (London) commented on the increase of cases of this complaint, one reason given being that they were diagnosed earlier. Another factor was the bad feeding of the children of the lower classes and the frequent dosing with powerful purgatives. It was said to be a rare disease in France.

The PRESIDENT considered that inflation or distension of the bowel was inefficacious in the great majority of cases and the return of symptoms was due to elusory reduction. Inflation and distension formed a haphazard proceeding because the intussusception so often commenced in the small intestine, and in children so frequently the ileo-cæcal valve was competent. He called attention to a form of this disease where the intussusception began in the caput cæci, and where after reduction a part was left projecting convexly into the colon. This had had to be sutured so as to make it concave internally. He mentioned a case of Meckel's diverticulum and a tuberculous ulcer causing the intussusception. He had come across appendicitis simulating this complaint.

Mr. PITTS briefly replied.

LARYNGOLOGY AND OTOLOGY.

WEDNESDAY, JULY 31ST.

This section met under the presidency of Mr. T. MARK HOVELL (London). The President did not give an address, but proceeded immediately with the work of the section which included two discussions and a plethora of papers.

Mr. F. MARSH (Birmingham), Dr. A. BROWN KELLY (Glasgow), and Mr. C. A. PARKER (London), opened a discussion on

The Treatment of Nasal Obstruction from Intra-nasal Causes other than Mucous Polypus.

Mr. MARSH defined nasal obstruction as inability to breathe freely and equably at the same time through both nostrils. He proceeded to describe some of the more common forms of intra-nasal obstruction and the methods usually adopted for dealing with them.

Dr. KELLY continued the discussion with a paper in which he dealt more particularly with the method of treating enlargement of the turbinated bodies. The introduction of the finger into the naso-pharynx to adjust the snare for the removal of the enlarged posterior end of the inferior turbinated body he considered was unnecessary and he advocated the performance of this operation under the guidance of anterior or posterior rhinoscopy. Excessive hæmorrhage resulting from the operation he considered need not be feared, it had not occurred in his experience. In dealing with these posterior hypertrophies it was well to keep the following facts in view: (1) that no amount of treatment applied to the anterior two-thirds of the turbinate would appreciably lessen the size of the posterior third; (2) that removal of a hypertrophied posterior end was not infrequently followed by subsidence of the swelling of the rest of the turbinate—the snaring of the posterior end should therefore be undertaken at an early stage in the treatment of these cases; (3) that after removal of what at the operation appeared to be the entire posterior end considerable enlargement might still be present when healing had taken place—this was probably due to swelling of the parts immediately anterior to the line of section; and (4) that after removing the posterior end on one side, that on the other, which previously appeared normal, might become enlarged.

Mr. PARKER dealt chiefly with the indications for operation and based his remarks on the results of some

investigations carried out for determining the direction of the air-currents in the nose which proved that the air traversed the middle and superior passages in inspiration and the lower meatus in expiration. The method employed for determining the inspiratory air-way was puffing lycopodium into the air the patient was breathing and afterwards noting its distribution within the nose. It was thought that the same method might be used with advantage for determining what structures were causing obstruction and how much of such structures required removal in order to restore free nasal breathing. It was important thus to limit operations, for probably the mucous membrane lining the middle and superior passages assisted in warming and moistening the inspired air. As inspired and expired air followed different courses in passing through the nose it was advisable to differentiate between inspiratory and expiratory difficulties; the questions of the drainage of the cavities and the possibilities of abnormalities causing chronic rhinitis should also be considered when dealing with nasal obstruction. As regards inspiration it seemed that alterations in the inferior meatus (with the exception of dislocations of the anterior end of the septal cartilage) caused no trouble because the air passed above them into the middle meatus; even slight alterations in the middle meatus, on the other hand, caused obstruction and required treatment. Enlargements of the middle turbinate also assumed considerable importance as they prevented the passage of air from the middle to the superior meatus. Such enlargements were found in connexion with rhinitis sicca, muco-purulent rhinitis, and commencing or established polypi, under all of which circumstances removal of the anterior end of the middle turbinate was indicated. The method employed for determining the course of the expiratory air-stream was the exhalation of tobacco-smoke. From the results obtained thereby and from the patient's subjective sensations it was evident that it required far greater abnormalities to render expiration difficult than it did to impede inspiration. Though normally the expired air passed through the inferior meatus it seemed easily diverted in cases of obstruction into the middle passage without causing difficulty, whereas even slight obstruction to the inspiratory air stream caused considerable difficulty. Operations on abnormalities of the inferior meatus were, therefore, seldom indicated for the relief of expiratory obstruction unless the middle meatus was at the same time more or less obstructed. The condition which most often caused stenosis of the inferior, and partial obstruction of the middle meatus was enlargement of the posterior end of the inferior turbinate. In such cases expiration was often more difficult than inspiration and operation was indicated. Efficiency of the drainage of the nose was thought to be important to the health of the cavities. The secretions gravitated to the inferior meatus, from which they were easily expelled on blowing the nose. If obstruction existed in the lower passage the expiratory air-stream was, as had already been said, diverted into the middle meatus, naturally losing much of its force, and hence the secretions tended to collect and to cause irritation. If the obstruction in the lower meatus was very great some of the secretions might remain in the middle meatus and set up inflammation there. Consequently operation was indicated in those cases in which secretions were found collecting within the nasal cavities or where great difficulty was experienced in expelling them. As regards the possibility of spurs and deviations, causing chronic rhinitis and its sequelæ by their mere presence, this was thought to be very rarely, if ever, the case. Unless such deformities caused either respiratory difficulties or inefficiency of drainage they might be looked upon as quite innocent of all harm. There was, however, one exception to this statement—namely, in cases of hay fever and asthma, where a spur, for example, might add to the temporary obstruction and increase the irritation. Under these circumstances it was sometimes advisable to remove spurs, and very occasionally even complete turbinectomy might be indicated.

Mr. MAYO COLLIER (London) pointed out the importance of adding the words "at all times" to the definition that had been given of nasal obstruction; he referred to cases in which the obstruction was experienced only at night upon lying down and spoke of them as cases of "latent obstruction."

Dr. HERBERT TILLEY (London) recommended subcutaneous section of the anterior end of the inferior turbinate body in cases of extensive hypertrophy of the mucous membrane, a method introduced by Delavan. Puncture and insertion of the galvano-cautery point secured the same end—i.e., the production of an internal cicatrising process which braced up the mucous membrane without destroying its physiological function. The posterior end was best removed by the cold wire snare, the index finger being passed into the naso-pharynx to guide the loop over the swelling. There was little pain in this if the naso-pharynx was slightly cocained and still less if the patient was assured that the discomfort would be only momentary. He disliked the use of the galvano-cautery snare in such close proximity to the Eustachian orifice; he concurred in the view generally expressed that complete turbinectomy must be very rarely required.

Dr. J. DONELAN (London) had found considerable advantage from the use of a five-grain tabloid of suprarenal substance at bedtime in the cases which had been described as of temporary nocturnal occurrence, and in which an operation could hardly be recommended. The patients experienced great comfort and in some cases complete relief for about 12 hours after the administration.

Dr. L. H. PEGLER (London), Dr. W. MILLIGAN (Manchester), Dr. STCLAIR THOMSON (London), and Dr. SCANES SPICER, amongst others, took part in the discussion.

The PRESIDENT congratulated the section upon the decided advance that had been made in the views entertained about the treatment of some of the forms of nasal obstruction which they had had under discussion. He was very pleased to hear such decided expressions of opinion against the reckless removal of the inferior turbinate body. For the removal of the posterior end of this body, when hypertrophied, he preferred the cold wire as being safer in such close proximity to the Eustachian tube. He entertained no fear of hæmorrhage in such cases; he referred to the cases in which, after the removal of adenoids, the obstruction of the nose remained which was due to the enlargement of the posterior ends of the inferior turbinate bodies, and advised the removal of the posterior end more frequently than was usually done in such cases. Septal spurs, in his experience, could be conveniently removed with the scalpel.

Mr. J. MACKIE (Nottingham) read a paper upon Practical Points in the Treatment of Nasal Suppuration, especially of the Accessory Sinuses. The paper was illustrated by a long series of cases which had been carefully tabulated and included several of sphenoidal sinus suppuration.

TROPICAL DISEASES.

WEDNESDAY, JULY 31ST.

Stone in the Tropics.

After the address of the PRESIDENT (Major RONALD ROSS, I.M.S.), which was published in THE LANCET of August 3rd (p. 339), a discussion on the above subject was opened by Mr. P. J. FREYER (London). He introduced the subject by a consideration of the distribution of urinary calculi in India, hoping in this way to help in elucidating the cause of the complaint. The question of phosphatic calculi would not enter into the discussion because the cause of these was well known to be due to the effect of changes in the bladder and urinary tract generally; consequently only the oxalate of lime and uric acid calculi were open to discussion from the distribution point of view. The stone-producing districts were practically confined to the north-west districts of India—namely, along the valley of the Indus and the upper reaches of the Ganges. Although these districts were wide alluvial plains, for the most part, the rivers rose amongst mountains of cretaceous formation and the impregnated waters of the rivers were carried down to the stone-producing regions. Climatic and meteorological considerations generally played, perhaps, an important part in the etiology of stone. In the regions described as affected extremes of heat and cold prevailed, and the non-flushing of the kidneys, during the hot weather, allowed of the deposits of crystals in the urine and developed in time into calculi. The relation of food and diet to the presence of calculi had been dealt with almost exhaustively by Sir William Roberts. He attributed the prevalence of stone in India to the fact that rice was largely consumed there; but in the districts where stone chiefly was met with wheat and barley were largely consumed. It did not seem, again, that eating flesh had anything to do with the formation of urinary calculi. The Mahomedans consumed flesh, but in Upper Bengal these people suffered from stone, while Mahomedans resident in Lower Bengal were almost entirely free from the complaint. Litholapaxy

was the form of treatment which Mr. Freyer recommended for stone. Lateral perineal lithotomy was the operation formerly practised in India. Neither suprapubic lithotomy nor lithotrity (crushing the stone at several sittings) had ever been popular in India. It was not until litholapaxy became general that the excellent results in the treatment of stone were obtained and the mortality was reduced to a minimum. To Lieutenant-Colonel Keegan they owed the establishment of the practice of litholapaxy in the case of children—a practice which was now well-nigh universally employed. The question of the power of the native to recover from operations had been advanced to explain away the excellent results obtained by practitioners in India from litholapaxy and other operations. Mr. Freyer did not believe this statement and held that the European at home or in the tropics recovered as well as, if not better than, the native after major operations. In India prostatic diseases were not met with to the same extent as in England, the explanation of this being that the natives did not come to Europeans to be treated for such complaints, and "catheter life" was almost unknown amongst natives. Patients suffering from prostatic disease were usually unrelieved in India and died more quickly from the complications induced.

Surgeon-General R. HARVEY, C.B., Director-General of the Indian Medical Service, upheld Mr. Freyer in his opinions in favour of employing litholapaxy in India. He had crushed calculi in India by the old lithotrity method at several sittings, but on one or two occasions the patient ran away whilst but imperfectly cured. The native could not understand many operations where one, even lithotomy, got rid of the ailment at once. By Mr. Freyer's and Lieutenant-Colonel Keegan's work not only India but surgery in every country had been advanced by the adoption of litholapaxy.

Dr. P. MANSON, F.R.S., did not consider that the presence of lime in the drinking-water was sufficient to account for the prevalence of stone. The irregularity and capricious geographical distribution of urinary calculi seemed to be due to some other cause; and Dr. Manson, arguing from the fact that the presence of a foreign body in the urine, be it mucus or the ova of bilharzia, was known to occur as the nuclei of calculi, considered that urinary calculi might have generally a parasitic genesis. In many parts of the world stone in the bladder occurred in regions where lime was not present in the soil, as in South China and in Aberdeenshire.

Lieutenant-Colonel G. M. J. GILES, I.M.S., considered that Mr. Freyer had scarcely proved his point as to the source of stone in the north-west part of India. Colonel Giles did not quite agree that the district in question was of the intensely calcareous nature stated by Mr. Freyer. The water in the wells of the district was by no means strongly impregnated with lime salts. He was inclined to agree with the opinion of Dr. Manson that a parasitic origin of stone would very likely be found to be usual were the matter fully investigated.

Dr. M. F. SIMON, C.M.G. (Singapore), said that except amongst immigrants stone was practically unknown in the Malay Peninsula. Rice, fish, and occasionally goat's flesh constituted the staple diet of the Malay; but he had never seen a Malay suffering from calculus during a 25 years' experience.

Captain CHARLES MILNE, I.M.S., stated that stone did not always prevail most in districts in which limestone was met with geographically.

Dr. L. G. HILL (Pakhoi, China) remarked that at Pakhoi calculus was almost unknown, whereas at Canton, only 200 miles away and in the same province of China, stone prevailed very extensively.

Dr. R. U. MOFFAT (Uganda) said that during 10 years' residence in Uganda and East Africa he had found only one case of stone in the bladder. There was no limestone in the Uganda district, a fact which might favour Mr. Freyer's theory. The case he met with had a foreign body as a nucleus but he could not accept unconditionally Dr. Manson's theory that all calculi had a parasitic origin.

Dr. F. M. SANDWITH (Egypt) stated that in both Upper and Lower Egypt the ova of Bilharzia very commonly formed the nuclei of calculi. The Nile water, which constituted the drinking water of the Egyptians from its source to the sea, passed through calcareous strata.

Mr. JAMES CANTLIE (London) gave personal experiences in regard to the practice of lithotomy and litholapaxy in Hong-Kong. He had difficulty during the performance of suprapubic lithotomy owing to the rupture of the india-rubber bag used to dilate the rectum just as the bladder was being opened. Out of 54 cases of lithotomy two patients died and one of the deaths was from suprapubic lithotomy. He had given up suprapubic lithotomy and believed that in a few years it would fall into disrepute as it had done during a previous cycle. Litholapaxy presented difficulties in the more isolated parts of the world owing to the possibility of the lithotrite failing at the crucial moment. The indiarubber in the exhaust bottle also was apt to crack and leak, and although litholapaxy was the preferable operation its practice in out-of-the-way parts of the world was at times attended by difficulties.

Dust as a Vehicle for the Germ of Cerebro-spinal Fever.

Major W. J. BUCHANAN, I.M.S., said that in a former paper on this subject he had related some 47 cases of cerebro-spinal fever and he now brought forward 13 additional cases, making 60 in all. He observed that out of 60 persons in the central prison at Bhagalpur attacked by cerebro-spinal fever 57 were amongst prisoners engaged in "dusty" occupations. The dusty occupations were brickfield work, road-sweeping, &c., and also wheat-grinding, rice-husking, &c. The greatest number of cases occurred during the dry hot and dry cold months. When respirators were given to the prisoners engaged in husking rice not a single case of cerebro-spinal fever occurred amongst them, whereas in the previous season eight cases were due to working in dust of this kind. Dust, therefore, would appear to be a frequent vehicle for the germ of cerebro-spinal fever.

Lieutenant-Colonel GILES stated that during an outbreak of cerebro-spinal fever in an Indian jail the symptoms in the first instance pointed to plague. Colonel Giles agreed with Major Buchanan that cerebro-spinal fever was more prevalent during the dusty season, but he was inclined to believe that the disease had something to do with infection of the habitation.

Four Cases of Abscess of Liver treated by Tapping with a Trocar and Cannula and Drained (Manson's Method).

Mr. CANTLIE (London) gave details of four cases of abscess of liver treated by him during the past 12 months. He had employed Manson's method in 28 cases in all up to date and 24 of the patients had recovered. The four recent cases were all intra-hepatic cases preceded by dysentery. Three of the cases recovered; the fatal case was that of a native of Zanzibar who was collapsed when admitted into the hospital and the operation was undertaken for the relief of symptoms merely. Mr. Cantlie advocated tapping by a trocar and cannula, and the insertion of a large tube stretched on a metal rod through the cannula to the bottom of the cavity in all cases of deep-seated abscesses. Thereafter syphon drainage should in each case be applied and the cavity left to drain without either washing out or flushing. The chief danger was the displacement of the tube as happened in one of the four cases owing to the patient becoming delirious. Operation by the "free method"—that was by laparotomy or by way of the thorax and pleura with removal of a piece of rib—was, in Mr. Cantlie's opinion, unnecessary, over-heroic, and impossible when the surgeon was single-handed as he often was in the more isolated parts of the world. Many patients objected altogether to "cutting" operations but readily submitted to tapping when the operation was explained to them. In this way time was gained and both the practitioner and the patient would have less hesitation in the operation being performed on account of its simplicity. When pus was close to the abdominal wall, or bulging and œdema had occurred in the chest wall, indicating that the abscess was quite superficial, operation by the knife was almost free from danger, but with deep-seated abscesses the case was different, and there was no shadow of doubt that Manson's method was by far the safest, most easily performed, and attended by the best results.

Mr. FREYER said that he adhered to the method of operation by incision and a free exposure of the cavity of the abscess. He had given up the practice of using the trocar and cannula some time ago, and he had no reason to regret it.

Dr. G. P. JORDAN (Hong-Kong) stated that his colleagues and himself in Hong-Kong had given up the operation by tapping and employed exclusively that of the free method. He employed a silver drainage-tube in preference to india-rubber, and the results were very satisfactory.

Dr. W. CHISHOLM (Sydney) said that in Sydney pus in the

liver was almost invariably secondary to hydatids, and that the operation by incision was invariably followed. At the same time he regarded the operation practised by Mr. Cantlie with favour, as he was opposed to the rather heroic tendency to treat even minor ailments by major operations when a less severe method might suffice.

Captain W. R. BATTYE, I.M.S., reported several severe hæmorrhages in cases operated upon by Colonel W. K. Hatch, I.M.S., in Bombay, the result of deep punctures with a hollow needle. He thought such cases justified operation by the free method, one reason being that the hæmorrhage could be more readily dealt with when the bleeding surface was exposed to view.

Dr. MANSON said that he had seen operations by both methods and that in trans-thoracic operation many accidents were probable which could not exist when the operation was performed by the trocar and cannula. For deep-seated abscess he believed that the safest method was that by tapping and insertion of a large drainage-tube.

Mr. CANTLIE, in summing up, said that all of the speakers had recorded cases of superficial abscesses. He did not claim any advantage for tapping in cases of that kind—they mostly resolved themselves into merely letting out pus that was pointing; but that for abscess seated four or five inches from the surface operation by incision was difficult, likely to lead to hesitation to operate, and created unnecessary danger to life. Severe hæmorrhage during hepatic aspiration was due to puncture of the inferior vena cava. Were, however, penetration in proportion to the measurement of the patient's chest such danger need not arise. He had proved that in a chest of 32 inches circumferential measurement at the seat of operation penetration in a direction vertical to the surface should not be carried further than four inches.

NAVY, ARMY, AND AMBULANCE.

WEDNESDAY, JULY 31ST.

The Disposal of the Wounded in Naval Actions.

Fleet Surgeon G. KIRKER, R.N., opened this subject with a practical paper divided under three heads: (1) the surgeon's station, or the place where the wounded are treated; (2) the time of treatment; and (3) the conveyance of the wounded; and said that it had always been the custom to select some well-protected and easily accessible part of the ship for the reception and treatment of the wounded and to convert it before action into a special surgical station. In the old wooden battleship the "cockpit" or after-part of the orlop deck—a place below the water-line and approached by a wide hatchway—was universally selected as the surgeon's station, and many of the scenes which had occurred there had found their way into history and art. When the iron battleship displaced the wooden one the "orlop deck and cockpit" disappeared and naval surgeons lost their prescriptive station in action. Then the captain and medical officer selected the place they thought most suitable. In this way the location of the surgeon's station was settled and owing to variations of ship-construction it would be so settled until a proper modern operation-room or modern "cockpit" was fitted up. This operation-room should be included in the internal arrangements of every modern battleship and cruiser. It need not be large and it should meet the requirements of aseptic surgery. It need not be particularly easy of access for with a properly devised ambulance sleigh the wounded man could be easily and safely taken down and along all hatchways and passages. During peace important surgical operations could be done in the operation-room and valuable surgical instruments and necessaries could be kept there. In time of war the surgical accessories would be protected during action, and after action operations would be done with more chance of success than occurred in bath-rooms or greasy mess-places. The preservation of the lives of the surgeons and the safety of appliances during action would prevent such disasters as occurred on board the Japanese ship *Hiyei* at the battle of the Yalu. In this ship a shell entered the wardroom, in which the cockpit was located, killing surgeons, nurses, and wounded, and destroying all surgical appliances. With regard to the time of treatment, it was the rule in time of war to remove the wounded at once to the dressing station. In modern warships it would not be practicable to remove the wounded during action; they would be left to wait for a lull in the fighting. The Japanese found that the surgeons could do no really good work till after the action. M. Fontain, Médecin-en-Chef de la Marine de France, in a paper at the International Medical Congress, Paris, 1900, stated that in the French navy no treatment of wounded would be attempted. The men would be attended to as well as possible, and restorative drinks would be administered, and after the action they would then be removed for treatment. In the matter of the conveyance of the wounded on board ship many contrivances had been used or proposed, but except the ambulance hammock and the ordinary canvas stretcher—which was mainly for use on shore—none had received official recognition. As far as he was aware this was also the state of matters in all foreign navies except those of France and Chile in which Auffert's gouttière métallique had been adopted. Among the contrivances in existence might be mentioned modifications of the service hammock (MacDonald), cot (Lloyd and Gonges), and stretcher (Dick), also Mowle's chair and Kirker's ambulance sleigh. An ambulance sleigh to be suitable for use on board ship should satisfy several important conditions. It should be able to retain its occupant securely in all positions from horizontal to perpendicular and it should be able to descend through a hatchway by sliding down the ladder if there was one, or by being lowered at any angle if there was no ladder. It should be short in order to get easily round corners, and in confined spaces where there was not room for two men to carry it it should be transportable by one. The speaker here showed some graphic photographs of the "sleigh" being used on ships of the Channel squadron.

The PRESIDENT (Deputy-Surgeon-General W. G. DON) commented in eulogistic terms on Fleet Surgeon Kirker's paper and invited discussion.

Fleet Surgeon C. L. VASEY desired to know whether any arrangements had been made on Fleet Surgeon Kirker's sleigh for special injuries such as fracture of the thigh, ankle, &c.

Inspector-General A. TURNBULL, R.N., said that the question of the transport of the wounded on board ship in time of war and in action had been the subject of consideration for years past. The sleigh was the most practical thing he had seen yet, and the only other thing was the St. John Ambulance Lowmore jacket which was good in its way. The surgical equipment during and after action was very different from that which was required in peace conditions. The appliances used in times of peace were quite unfitted for work during and after action and it was very difficult to go about properly equipped for an engagement which might occur at any moment most unexpectedly.

Surgeon-General T. F. O'DWYER, A.M.S., Principal Medical Officer, Aldershot, made some remarks on the value of antiseptic surgery and the benefits of settling on the space to be allotted on board ship to the care and treatment of the wounded.

Dr. LEIGH CANNEY (London) remarked that it was surprising to hear that on a complicated modern battleship no adequate and satisfactory means of transporting the wounded existed and he thought that the best possible scheme, such as this one suggested by Fleet Surgeon Kirker, should be adopted and put into use with the least possible delay.

Fleet Surgeon KIRKER, in reply, thought that the most important points to be borne in mind were those three points which he laid stress upon in the beginning of his paper—namely, the surgeon's station or place of treatment of the wounded; the time of treatment; and the conveyance of the wounded.

Surgeon F. H. A. CLAYTON, R.N., contributed a paper on the same subject which, in his absence, was read by the secretary. He advocated fore and aft operation-rooms, and dealt in detail with the arrangements necessary and the surgical appliances needful and imperative, and advocated the strictest possible antiseptic and aseptic precautions, even to dressing the crew before action in sterile garments. He commended hospital ships and careful training of ambulance parties.

The PRESIDENT made appropriate remarks on the careful attention to important detail.

Inspector-General BELGRAVE NINNIS, R.N., also contributed a paper on the same subject. He strongly advocated the use of special hospital ships to take off the sick and wounded. He also dealt with the internal arrangements of such ships and laid down special guiding rules as to their mission and construction. They should be floating hospitals, and the treatment of the sick and wounded should

be their sole and only use. They should embody all the essentials of a small and perfectly equipped land hospital, infectious fever cases excepted. The propelling power should be arranged to leave ample space for wards, yet be strong enough to keep the ship within signalling distance of the fleet. Her tonnage should allow of a lower deck partially below the water, with port-holes, a middle deck, a main deck, and an upper deck. She should be of steel or iron and wood-cased on the outside for coolness. Large doors should be in the ship's side for transport and a platform outside to act as a stage which could be hauled up against her side when not required. Each deck should be cut off from the decks above and below. Ventilation could be procured by shafts. Each deck should be approached from the upper deck by a separate companion. Lavatories and water-closets should be provided for each deck and in the "companion" space. Wards should extend across the ship for purposes of through light and draught. Beds and cots should be swung by short slings, but they should be capable of fixation by iron stays. Operation wards should be on the upper deck and near a lift well opening into the surgical ward. The lift should be able to take a mattress of the same size as those used in the wards. A special research room should be provided in the immediate vicinity of the operation ward, separated from it by a space.

The PRESIDENT made a few remarks, commending the suggestions of Inspector-General Ninnis, and invited discussion.

Inspector-General TURNBULL deprecated the complication of surgical arrangements and appliances, also a too great elaboration of detail in the arrangements of hospital ships; he advocated the provision of good ventilation and the facility of segregating infectious and other special cases. He thought that the desired results could be arrived at in some such simple manner as that suggested by Lord Lister.

Staff Surgeon W. E. HOME, R.N., contributed a paper composed chiefly of statistical matter on

The Healthfulness of Modern Warships,

and emphasised the following points:—The only source of information was the annual report of the health of the navy; early iron ships were, by the experience of the training service, shown to be healthier than wooden ships; the early central battery ships were healthier than the early iron-ships; the turret ships were healthier than the central battery ships, shown by experience with Malta fever; the new first-class battleships now in the channel were healthier than were the old channel ships; and the best way to secure a healthy ship was to "keep her well ventilated and dry."

In the discussion which followed Inspector-General TURNBULL said that the crews on wooden ships were subject to sloughing ulcer, and infectious diseases usually spread like wildfire when once they obtained a footing on a wooden ship. Cerebro-spinal fever was not unknown in connexion with wooden ships.

Fleet Surgeon KIRKER did not think that the sanitary conditions on board ship were all that could be desired chiefly because the necessary cubic space was not obtainable. The greater the reduction of the ship's complement of men the better the health records became.

THURSDAY, AUGUST 1ST.

The proceedings of this section were opened with a paper contributed by Sir WILLIAM MAC CORMAC, Bart., K.C.B., K.C.V.O., to a crowded meeting, entitled,

Some Remarks by Way of Contrast on War Surgery Old and New

He dealt with the position attained and yet to be attained in general estimation of the sterling merit of the medical officer of the army and quoted from McWhinnie's introductory address at St. Bartholomew's Hospital in 1856 Colonel Ambert's touching eulogy of the military surgeon during and after battle. He agreed with McWhinnie that the blame attached to the medical department of the army at the beginning of the Crimean campaign was due to non-adoption by the authorities of their recommendations and when these injunctions were tardily attended to matters improved markedly. The results of surgery in the Crimea far surpassed (according to Dr. Balfour, then of the Royal Military Asylum, Chelsea) the anticipations of even the best friends of the department. He compared the Peninsular, Crimean, American, and Franco-German wars with the South African war as to length of struggle, number of wounded, and strain upon the Army Medical Department. He said that in considering matters there must be taken into account the organisation of the medical corps, the improvement in means of transport of sick and wounded, the formation of hospitals and commissariat supply. He mentioned the introduction of chloroform into field work and stated that Baudens mentioned it as being administered 25,000 times without a single fatal result. It was more precious in the field than in civil practice. Antiseptics were not employed in the Austro-German war and only to a slight extent in the Franco-German war. He next touched upon the mortality after operations and gave a list of the serious septic surgical accidents then prevalent after operation, and mentioned the heavy mortality in fractures of bones and the great number of deaths from hæmorrhage. He explained the bearing that the large bullet had on the increased mortality, and he mentioned Bergman's and Reyher's success in treating bullet-wounds of the knee-joint in the Russo-Turkish war. In Egypt in 1882 antiseptic surgery prevented the occurrence of one single case of post-operation sepsis, as gangrene, erysipelas, pyæmia. In South Africa chloroform and morphia were universally used and gave blessed relief from much pain and suffering. The modern bullet caused less shock and less injury to tissues. Bone was damaged in a limited degree and recovery was generally rapid and without complication. The bullet was aseptic, did not as a rule carry clothing into the wounds, and acted mainly as the producer of subcutaneous wounds, therefore frequency of recovery was great. Bullet-wounds of the abdomen, thorax, head, joints, spleen, liver, and kidneys were commonly less fatal than ever before known. Large arteries were cut without any appreciable hæmorrhage. In the Crimean and the Franco-German wars deaths from hæmorrhage in the field were about 20 per cent.; in the South African and the Cuban wars deaths from this cause were comparatively rare. He did not advise interference with resulting arterio-venous aneurysms unless complicated. Non-interference was what was found in South Africa to suit the majority of every class of injury, especially in abdominal cases. He then compared the mortality from injuries occurring to various parts of the body in the various campaigns, as the thigh, the chest, the head, the abdomen, &c. Amputations would be found to have been amazingly rare. He next compared the relative numbers of killed and wounded in the South African war and those casualties occurring in previous wars. In the American war one man was killed for every four and a half men who were wounded; in South Africa only one man was killed to every seven men who were wounded. From 6 to 8 per cent. now died from wounds; in America 14½ per cent. died. Sir W. Mac Cormac next touched upon the causes of the small mortality in South Africa and he cited the lists of killed and wounded at Gravelotte, St. Privat, Koniggratz, Waterloo, and Mars-la-Tour, when the killed often exceeded 10,000 in a single fight, and the wounded ran into tens of thousands. On the other hand, in South Africa, whereas at Colenso the Boers had five only killed and 25 only wounded we suffered a loss of 1100 casualties owing to the Boers not being seen and our men fighting in the open. The casualties were surprisingly small in number. He next dealt with the field dressings and commended the same in a qualified manner. The Roentgen rays came in for well-deserved praise as against the harmful and oft-disastrous probe, a cause of much pain and suffering. He then gave an account of the magnificent work done by the organisations for removing and attending to the wounded and the enormous distance in aggregate travelled by the hospital trains, the great value of the hospital ships, and he laid the greatest possible stress on the remarkable rapidity with which the wounded had been transported from the field of battle to places where every care and luxury had been provided. He concluded a paper of world-wide interest by a reference to the bad old days when the wounded were allowed to lie out on the field of battle to be robbed and murdered by thieves and cut-throats among camp followers.

The PRESIDENT characterised Sir William Mac Cormac's paper as being above comment or criticism, and he said that the paper was a most remarkable vindication of the Royal Army Medical Corps in South Africa.

Dr. ROBERT FARQUHARSON, M.P., also characterised the paper as being far beyond criticism. The country ought to be grateful to Sir William Mac Cormac for his noble work, his experiences, and the recounting of them. He agreed with the President that the paper thoroughly vindicated the Royal Army Medical Corps. It was most ungenerous of the

general public to have so treated men working hard on behalf of the suffering. He had asked on the floor of the House of Commons that the Government would speak some cordial words of thanks to the Royal Army Medical Corps as they fully deserved it. They had sent out a commission to inquire about the Royal Army Medical Corps but no commission had been sent out to inquire about the failures of generals and military departments; it seemed that the Jonah of the services was the medical department. That commission reported favourably, for it could not have done otherwise, and it was no packed or whitewashing commission, and to speak of it as such was an outrage and a scandal. The surgical skill displayed in South Africa was highly creditable to those employed. The favourable results of this campaign as regards medical skill in the treatment of wounds would impart confidence to the soldier and as a consequence, he knowing himself to be surgically safe if wounded, would, if it were possible, fight with greater pluck. He cordially hoped that Sir William MacCormac's paper would be widely circulated throughout the world.

Fleet-Surgeon G. KIRKER, R.N., said that in the Russo-Turkish war, in which he happened to have been employed through the kind influence of Sir William MacCormac, he came to the conclusion then that conical bullets would inflict less severe wounds than spherical bullets. He had put this on record and his prediction had now come true. In Turkey compound bullet-fractures of the thigh healed rapidly. Lung wounds were singularly rapid in recovery. He had seen knee-joints heal after injury without suppuration. Mr. Clinton Dent had brought forward the fact that the nature of the projectile was the real cause of the trivial character of the resulting course of the cure and not so much the use of antiseptic surgery as was commonly supposed, though the latter in great part contributed to a favourable result.

Surgeon-General T. F. O'DWYER, A.M.S., Principal Medical Officer, Aldershot, said that deductions by a master mind were what were wanted and Sir William MacCormac had given them, and that made his work so much the more valuable. At Waterloo 50,000 infantry had a front of three miles but in the advance from Bloemfontein rather less than that number had a front of 20 miles. This contrast involved a marked increase of medical transport. The antiseptic field dressing was a most important part of the equipment and every man was well instructed in its use. The medical department had found so much equipment that very little was left to supplement their efforts, as available material was exhausted, so that showed that they had done much good work.

Surgeon-General J. B. HAMILTON, A.M.S. (retired), gave a short account of the progress of the development and adoption of the conical ball. The Snider-bullet had not been used in fighting with the army. This was fortunate as the Snider-bullet would have been a most deadly bullet. Most fortunately for humanity it went out. He thought that the Dum-Dum bullet was a deplorable mistake of the Government for which we had been suffering a just retribution in South Africa. He gave the results of experiments on soft-nosed bullets recorded last year at the meeting of the section by himself. The Dum-Dum bullet caused injuries out of all proportion to what was necessary. The form of projectile was vital to humanity. The medical profession should press the Government to abandon the soft-nosed bullet. The Geneva Convention had condemned it and all found using it should be court-martialled and promptly shot.

Surgeon-Major G. K. POOLE, M.D., referred to the men who had come home from South Africa and noted that some had suffered terribly, whilst others made quite light of their injuries.

Surgeon-General R. HARVEY, C.B., D.S.O., Director-General, Indian Medical Service, said that during the last five years the first field dressing had been issued to the whole of the Indian army and had proved exceedingly valuable. The loss from wounds was very small indeed. He agreed that the Dum-Dum bullet should not be used against civilised troops, but when one came to deal with those of lower nervous organisation, such as savages, Soudanese, Ghazis in India, the Dum-Dum bullet was the only possible means of stopping a rush. It caused serious panic among civilised troops to see a man hit five or six times mortally through the body and after all come on and kill his man before he fell. In his opinion in war the main object was to "stop your man"; if one could not do so by injuring him then the next best means, even to killing him, must be adopted. Humanity, he thought, "began at home," and from his point of view it was far more humane to kill the "other fellow" before he succeeded in doing the like service for you, and that there was a limit to certain things no less in killing than in others, especially where certainty of means of doing so were involved.

Dr. J. W. SMITH (Manchester) said that from his experience in South Africa he agreed with Sir William MacCormac that the first field dressing was not as antiseptic or as efficacious as was supposed. It was the nature of the small bullet-wounds, the hot sun, and the clear dry air that caused the good results. Adhesive plaster should be used in the field dressing. He would like to bear testimony that the Royal Army Medical Corps, to whom he was temporarily attached, did their work splendidly in South Africa. He gave evidence before the Commission and he could truthfully state upon his honour that there was nothing upon which the Commission was not most fully informed from all quarters and under all circumstances. Especially at Bloemfontein was this the case, the fullest investigation being made.

Dr. F. C. H. PIGGOTT (Teignmouth) pointed out that the so-called explosive bullet was in reality an expanding bullet.

Surgeon-General R. HARVEY said that an explosive bullet was not used by us at any time, and they were only used by some sportive Boer who, having used them for game shooting, decided to use them on our men.

Lieutenant-Colonel G. M. J. GILES, I.M.S., said that Surgeon-General Hamilton's humanity might suit the native's point of view, but was not humanity for poor Tommy Atkins.

Surgeon-General C. SIBTHORPE, C.B., disagreed with Surgeon-General Hamilton on the matter of the Dum-Dum bullets against savages.

Sir WILLIAM MAC CORMAC, in reply, spoke eulogistically of the work of the Royal Army Medical Corps. He said that bullets not pills, according to Lord Kitchener, with whom he agreed, were what were wanted at Bloemfontein shortly after its primary occupation. This was not surprising, as the main consideration was war, and they must bear in mind that once upon a time the wounded were killed by their own people; nowadays they strained their resources to the utmost on their behalf.

Dr. LEIGH CANNEY (London) read a paper on

Air-borne Typhoid Fever in Armies.

He dealt with the water-supplies of various Indian cities and various outbreaks of enteric fever, and contended in a long paper containing much original work that water, and not air, was the main channel for conveyance of typhoid infection, and that air, dust, and flies were a comparatively weak medium. He reviewed sanitary matters in India and then dealt with the same in the campaign in South Africa. This was followed by an exposition on sanitation in Egypt, especially at the barrage works on the Nile, and on tourists' risks. He strongly advocated a special water corps attached to the Royal Army Medical Corps to care for the water-supplies of the army when in the field.

In the discussion which followed the PRESIDENT commented in favourable terms on Dr. Canney's paper and stated that for the most part he believed that typhoid fever was water-borne.

Surgeon-General C. M. CUFFE, C.B., said that he had had some returned enteric fever invalids from South Africa, and among them were men of the Northamptonshire Regiment who contracted enteric fever due, he thought, to sewer gas entering the barrack room from sewer pipes found to be defective. The urine of other patients who had recovered from enteric fever had been examined and the result was negative as far as the typhoid bacillus was concerned. The outbreak was, in his opinion, due to direct infection from the source mentioned, and he advised the authorities accordingly. He thought that flies were a great source of infection. The unsatisfactory army kitchen arrangements and defective cleanliness of the cooks were in great part responsible. Soldiers, on the other hand, would persist in drinking water labeled "not for drinking."

Dr. J. W. WASHBOURN (London) believed that there was some foundation for the air-borne theory. The Maidstone outbreak showed water-borne typhoid fever. There would also be in every epidemic direct infection of certain cases, such as occurred in Maidstone. He thought that dust did occasionally convey typhoid fever in South Africa, though it was not the main cause, for in summer in South Africa there was little dust and much typhoid fever. He therefore thought that typhoid fever was chiefly water-borne. He agreed with Dr. Canney as to proper protection of water by such a corps, as it would prevent epidemics.

Lieutenant-Colonel GILES, I.M.S., thought that flies and dust were some of the ways of carrying typhoid fever as well as water which everyone was agreed on was the main source of infection. He thought trench latrines a deadly and horrible source of typhoid fever infection, chiefly due to the intermediary agency of flies between the latrines and the food. Removal of filth by the Government for two years kept down typhoid fever for that period. He thought that the Agra water-supply was as good as was that even of London.

Dr. G. E. G. SIMONS (Merthyr Tydvil) said that his experience as a medical officer of health entitled him to speak on the matter and that in his opinion, judging from results, typhoid fever was more due to flies than to water and to direct contamination. In a large epidemic he found that houses in one terrace the water supplied to which was good and free from infection were always being attacked and had been so for years past. There were accumulations of manure and filth close by and the flies lived and bred there. He cleared away the filth and the typhoid fever ceased. He found here also that in summer and early autumn adults and children were affected, but that in winter children alone were infected. When summer returned the typhoid fever in adults did so also. He found the soil near a surface drainage channel infected with typhoid bacilli which were cultivated from the channel and were afterwards used in Widal's reaction. The children infected were those of a school age who played about the drain. He thought that the infection reached the children direct and was transported to food by flies and thus affected the adults in summer. In a case of two regiments near, and civilians, taking the same water-supply the soldiers of one regiment which was without fly-proof cages for the food were the only persons attacked by typhoid fever, and the soldiers of the other regiment which had them, and the civilians, were not troubled with a single case.

Dr. LEIGH CANNEY, in reply, said that the Royal Army Medical Corps ought to have a water corps. He agreed with Dr. Washbourn that the majority of cases were due to water.

A discussion then followed on

The Organisation of the Military Services.

The PRESIDENT deprecated the discussion at the present time as the matter was *sub judice* elsewhere.

Surgeon-General R. HARVEY agreed with the President but wished to state that the report of the Parliamentary Bills Committee had aroused unanimous disapproval and opposition in the Indian Medical Service throughout all India. Though he sympathised with the Royal Army Medical Corps he did not approve of its rehabilitation being effected at the expense of the Indian Medical Service if the proposals of the committee's report were carried out. He thought that the reform could be carried out in the Royal Army Medical Corps without interfering with the Indian Medical Service. The Indian Medical Service were quite contented with their lot and any grievances they had were minor and local and not of main service interest. The service should offer good prizes to good men—at present good and bad ranked together—attach a good allowance to station hospitals, and give them to good men. The men should have plenty of practical experience in times of peace and leave for study and instruction. He tried a scheme in India to put all men in Punjaub through a four-months' course of practical surgical training in the hospitals. He thought the military discipline should be removed from professional duties and that professional etiquette should take its place; men should not be ordered to change their diagnoses and thus stultify themselves, nor ought they to be compelled to ask leave to do a circumcision, or to give chloroform, or to avulse a toe-nail. Each man should be solely responsible for his case as in civil life. He was emphatically of the opinion that the Indian Medical Service would be ruined by the interference suggested in the committee's report.

Surgeon-Major G. K. POOLE, M.D., also spoke.

Inspector-General A. TURNBULL moved that the further discussion of this matter be now forthwith closed. This was seconded by the PRESIDENT and approved by the meeting.

DERMATOLOGY.

WEDNESDAY, JULY 31ST.

The proceedings of the section commenced with an exhibition of cases, after which

The PRESIDENT (Dr. J. J. PRINGLE, London) made a few introductory remarks.

Dr. RAYMOND J. SABOURAUD (Paris), who spoke in French, read a paper

On the Rôle of Cocci in the Pathology of the Skin,

and said that there were three microbes of the genus "coccus" which played an important rôle in the pathology of the skin. The first was the streptococcus of Fehleisen, the special cutaneous lesions produced by which was the impetigo contagiosa of Tilbury Fox. The second was the staphylococcus aureus of Rosenbach, the special cutaneous lesions produced by which was the follicular orificial pustule of the impetigo of Bockhart. The third was a grey cultured staphylococcus (morococcus of Unna), the special lesion produced by which was pityriasis simplex wherever situated. Apart from their specific lesions each of these microbes might be accidentally found in other lesions as a "secondary infection," by the evolution of which each might be modified in its own special pathogenic manner. He was of opinion that the varieties of cocci invading the skin were much less numerous than was generally believed by Unna and others, and he thought it possible that the three kinds of cocci he was about to describe were quite likely to be polymorphic varieties of one and the same microbe.

1. *The streptococcus.*—The streptococcus which might cause a great number of general lesions might produce very diverse cutaneous lesions. In the course of streptococcic septicæmia the bullæ of infectious pemphigus might arise. In them cultures proved the existence of the streptococcus as in the different metastatic lesions of the visceral organs which it also caused. In the course of these infective states lumps might develop in the skin similar to those of erythema nodosum, which were the result of streptococcic thrombi in the blood-vessels of the derma. Direct inoculation of streptococci into the derma might produce erysipelas, characterised by the multiplication of the microbe in all the epidermic and dermic layers of the affected region. But the specific lesion which the inoculation of the streptococcus provoked in the epidermis was the impetigo contagiosa of Tilbury Fox. It began by a flaccid bulla of very ephemeral existence, which yielded an enormous quantity of serous liquid. This exudation dried up to form a yellow, scabby, adherent crust. Under the crust was found a little fibrinous exudation characteristic of the multiplication of streptococci on the ulcerated epidermis. The lesion disappeared without leaving any cicatrix. Streptococci very often occurred as complications of a great many diffused lesions of the epidermic surface (eczema). Their secondary multiplication reproduced the two capital symptoms—that is, the diffuse exudation of limpid serum and the slight fibrinous, greyish-blue exudation on the surface of the epidermis deprived of its horny layer. The streptococcus might cause dermic ulcerations deeper than mere epidermic erosions—the rupia of Bateman. These were conical ulcers with thin scabs containing a sanious liquid. This lesion was now erroneously known in France under the name of "ulcerated ecthyma." The proper treatment of the streptococcic lesions of the epidermis was the local application of solutions of the sulphates—for example, sulphate of zinc one gramme, aqua destillata from 100 to 200 grammes.

2. *The staphylococcus aureus.*—The specific lesions of the staphylococcus aureus was the pustule. This intra-epidemic pustule was generally perifollicular. Often it was deeper than the epidermis and produced a small cicatrix in the derma. The perifollicular pustule contained groups of staphylococci under its corneal covering. The cavity of the pustule was full of leucocytes and at its base was a point of dermic necrosis. This pustule might extend in depth and thus cause a boil, a furunculous abscess, or a sycosis as the result of a deep multiplication of the microbes consecutive upon a superficial orificial perifollicular invasion. These pustules might appear spontaneously (impetigo of Bockhart), or as the result of trade traumatisms (dermatitis of hands of washerwomen), or after some medicinal applications (acne picis, pustular mercurial eruptions, &c.). In hairy regions pustular eruptions became very chronic, for example, sycosis. These pustules might be secondary to a pre-existing local necrobiosis. Thus, boils, acne cheloid, and acne varioliformis necrotica were pustules caused by the staphylococcus aureus, originating round comedones. The staphylococcus aureus might secondarily infect all lesions where the derma was exposed, either spontaneously (for example, eczema) or accidentally (for example, vesicant applications). It might grow and multiply on lesions which it had not caused and might spread to evoke near them, or even on them, its own special lesion, the follicular orificial

pustule with all the complications—boils, &c. These pustules, so abundant on the surface of chronic eczema, had been erroneously classed by Unna as the elementary and microbic lesions of eczema. It was easy when they met with a lesion containing the staphylococcus aureus to know if it were this microbe itself which had caused it, for in the lesions which it caused the staphylococcus aureus existed alone. Dr. Sabouraud then described the method of culture which he had employed. No microbic secondary infection could come after it. The local remedy for pustular lesions produced by the staphylococcus aureus was sulphur; for example: alcohol 30 grammes, sulphur precipitatum 19 grammes, aqua rosæ 100 grammes. It succeeded in all cases where the staphylococcic pustule was not superimposed upon a dermatosis in itself irritable or intolerant to its action, such as eczema.

3. *The grey cultured staphylococcus (staphylococcus cutis communis).*—This was the most common microbe on the surface of the human skin. It always occurred in single scattered elements. But on certain skins it found conditions propitious for growth. It then broke up the horny epidermis and caused pityriasis. In such lesions it did not exist as isolated elements, but in masses more or less considerable and numerous. It caused the fine pityriasis of the surface of acneic skins, the pityriasis simplex of the scalp or fatty pityriasis. This microbe caused cleavage of the horny cells of the epidermis which it raised by multiplying underneath them. It caused itching and mutiplication of the epidermic cells which result in the formation of scales—the elementary lesion of pityriasis. When its action was prolonged it caused a disturbance of the function of cornification which characterised the normal horny layer. Thus, the scale became fatty, the so-called seborrhœic "eczema" of Unna. When this multiplication took place on a dry skin the pityriasis, after having begun by a round spot, lost its regular form. When this multiplication took place on a previously fatty skin, its lesions kept their regular circinate form, as in the type which was called "circinaria" by Payne, "figurated seborrhœa corporis" by Duhring, "lichen annulatus" or "serpiginosus" by E. Wilson, and in France *eczéme parasitaire* (Besnier) or *flanellaire*. In all these pityriasic forms it was frequent to find near the grey-cultured staphylococcus the "fäschen bacillus of Unna" (spores of Malassez), which, perhaps, was only a degenerated form of the grey-cultured staphylococcus itself. When this special staphylococcus grew on a skin already infected by other microbes little pustules might accidentally form, which evolved almost without any functional symptoms. The most typical of these pustules was presented by the common little pustules of polymorphous acne. The best topical remedy against this microbe and for the pityriasis that it caused was coal-tar combined with the mercurial peroxide, oil of cade (juniperus oxycedrus) 10 grammes, yellow bioxide of mercury one gramme, yellow vaseline 30 grammes.

The address was illustrated by a large number of drawings and lantern slides from high magnification of microscopic specimens (up to 2000 diameters amplification) made by Dr. Noiret of Paris, under the direction of Dr. Sabouraud.

Dr. JAMES GALLOWAY (London) made a communication on the same subject. He commenced by remarking that the increase of pathological and bacteriological investigation in diseases of the skin had produced a large amount of information requiring criticism and simplification. The tendency had been to magnify small distinctions in organisms discovered, to consider these distinctions sufficiently important to characterise a species, and thus to introduce the organism as the specific cause of the disease. The streptococci and staphylococci had specially suffered from this tendency. It was to be recollected: (1) that these organisms were very variable both in cultural peculiarities and in virulence; (2) that inflammatory lesions of the skin were rarely the result of one cause or one pathogenic organism, but had a complicated causation, or at any rate were the result of mixed infections; and (3) on account of the enormous number and variety of organisms present bacteriological investigation was difficult and apt to be inaccurate and so to give rise to error. These results of his observations coincided with those of Dr. Sabouraud, and he (Dr. Galloway) was glad that Dr. Sabouraud had modified his views in some respects. There seemed to be three species of cocci specially concerned in diseases of the skin: (1) streptococcus, identical with the streptococcus pyogenes (Fehleisen); (2) staphylococcus—producing yellow cultures—identical with the staphylococcus pyogenes aureus (Rosenbach); and (3) staphylococcus cutis communis—producing whitish cultures—identical with the staphylococcus pyogenes albus (Rosenbach).

Dr. A. WHITFIELD (London) expressed a preference for Dr. Sabouraud's original classification of the cocci affecting the skin.

Dr. NORMAN WALKER (Edinburgh) thought it was remarkable that observers should be so anxious to prove that eczema was non-microbic. Pure streptococcic cultures could be obtained every time from impetigo contagiosa. He used agar first, then a fluid medium. The other two organisms found in the skin were the staphylococcus aureus and the staphylococcus epidermidis albus. He agreed with Dr. Sabouraud in the main.

Dr. T. D. SAVILL (London) wished to turn to the practical aspect of the question. He had inoculated a patient, a man, aged 27 years, who had been suffering severely for three months from boils, with some streptococcic vaccine, which Professor A. E. Wright of Netley had kindly supplied to him. The first inoculation was performed on a Monday, the second on a Thursday, and the third on Monday again. The patient made a very rapid recovery. This was perhaps remarkable because streptococcic vaccine (the dead cultures of streptococcus) had been used for what was known to be a staphylococcic infection.

Dr. W. DUBREUILH (Bordeaux) discussed the possible sources of infection in impetigo contagiosa: was it always a previous case, or might it not be any pus infection such as discharge from a suppurative otitis?

Dr. W. A. JAMIESON (Edinburgh) referred to the clinical aspect. He thought it was curious that the same coccus should be the cause both of erysipelas and impetigo. He had seen extensive epidemics of the latter in schools, but not a single case of erysipelas had occurred.

Dr. H. RADCLIFFE CROCKER (London) referred to an infant who was recovering from vaccination complicated by impetigo. Six weeks later erysipelas developed which imperilled the child's life.

Dr. COLCOTT FOX (London) and Mr. GEORGE PERNET (London) followed.

Dr. W. DUBREUILH (Bordeaux) read a paper on

Paget's Disease of the Vulva.

Paget's disease of the nipple was first considered to be an eczematous condition of the skin which, owing to some local peculiarities, was liable to degenerate into cancer. Since then it had been proved that the disease was an epithelioma from the first, but a superficial one, attacking only the epithelial covering of the skin and lasting for years without invading the deeper structures. When it did go deeper it followed the epithelium of the milk-ducts. Paget's disease might exceptionally affect other parts than the nipple, but no case had been published of its affecting the vulva. The patient was a woman, aged 51 years, who had noticed three years before a tender part on or near the clitoris; this increased slowly and itched moderately. When first seen there was a large sore patch involving the front part of the vulva. The skin and the mucous membrane were superficially ulcerated, deep red, with a few white spots of thickened epidermis. The patch had a well-marked outline and was hard and thickened, so that it had somewhat the appearance of a syphilitic primary sore. The whole patch was removed, also an enlarged gland in the left groin. Microscopical examination showed that the epithelial covering of the parts was not destroyed, but had taken the aspect of ordinary epithelioma spread out as a sheet on the surface. The disease was quite superficial and the papillary layer of the corium was quite free. The epitheliomatous nests which were sometimes to be found deeper were easily traceable to the follicles and mucous glands, the superficial ulceration having followed down their epithelial covering.

Dr. J. M. H. MACLEOD (London) made a contribution on

The Histo-pathology of Yaws,

the material for which was obtained from the Kurunegalle Hospital, Ceylon, through the kindness of Sir William Kynsey, late Inspector-General of Hospitals, Ceylon. Eight typical cases of yaws in different stages of the disease were selected and characteristic lesions were excised. The tissues were preserved in spirit and for ordinary histological purposes were in no way injured by their journey from Ceylon. Yaws belonged to the group of the "infective granulomata." It was distinguished from (1) actinomycosis and rhinoscleroma

by the absence of their specific micro-organisms; (2) from the lepromata by the absence of Hansen's bacillus; (3) from mycosis fungoides by the absence of "fragmentation" of the infiltrating cells, and of degenerative changes with the formation of products of degeneration in the collagen and elastin, and by the presence of the peculiar epidermal changes of yaws; (4) from tuberculosis, apart from the tubercle bacillus, by the absence of the characteristic architecture with its giant-cells, daughter-plasma-cells, more marked disintegration of the fibrous stroma, and complete disappearance of the blood-vessels; and (5) from syphilis it was distinguished by the following details which, considered collectively, strongly suggested that yaws and syphilis were different histological entities. (*a*) Cellular infiltration: plasma-cells were not so definitely arranged in rows or clustered round the blood-vessels as in syphilis; no large multinuclear cells (chorio-plaques) or true giant-cells, or intracellular hyaline degeneration was noted in yaws. (*b*) Fibrous stroma: rarefaction of the collagen was more marked than in syphilis, but no organisation or colloidal degeneration (such as occurred in syphilitic gummata) was found. (*c*) Blood-vessels: there were no distinct proliferative changes in the vessel-walls or endothelium as frequently occurred in syphilis. (*d*) Epidermis: marked proliferation and downgrowth of the epithelium, with a great thickening of the horny layer (due to hyperkeratosis or parakeratosis), were characteristic features of yaws, while they were unusual in syphilis.

Sir WILLIAM KYNSEY, C.M.G., F.R.C.P. Irel. (London), drew attention to the confusion between syphilis and yaws. The incubation of both was very much alike; in both there was polyadenitis. Superficially they much resembled each other, but really they were quite distinct. The seat of inoculation of yaws was never sclerosed. The eruption was not polymorphic—it was always the same at all ages—and essentially it was a non-ulcerative disease unless by pus inoculation or tuberculosis. The constitution never suffered cachexia in yaws, and only the skin and mucous membranes were affected, not all the organs as in syphilis, and never the nervous system. Yaws was a disease of childhood, but it was never congenital. The eruption was a granuloma and it never left a cicatrix.

THURSDAY, AUGUST 1ST.

The meeting opened with an exhibition of cases by Dr. H. WALDO (Bristol), Mr. MALCOLM MORRIS (London), and Mr. JOHN HOWELL (Cheltenham).

Mr. MALCOLM MORRIS (London) then initiated a discussion on

The Treatment of Skin Diseases by Finsen's Light Method and X Rays.

He remarked that he would direct his attention chiefly to the application of this treatment to lupus. In northern latitudes the sun could not be relied upon altogether, and therefore the electric light must be had recourse to, which in point of fact was therapeutically more active. In respect of current he had found one of about 70 ampères and 60 volts sufficiently strong to produce the effect required in most cases, and it had been thought better to shorten the time of exposure rather than to lessen the intensity of the light. In order to get a powerful light it was most important (1) that the lenses, especially the bottom one, should be clean and bright, and (2) that the water should be clear and free from floating particles. The bottom lens should be thoroughly cleansed and polished every day—a detail which was greatly facilitated by having it made detachable. The method of application was then described, and Mr. Morris remarked that up to July, 1901, the total number of cases treated at the establishment under his direction was 60. In 36 of these the disease was lupus vulgaris, in six lupus erythematosus, in 13 rodent ulcer, in one doubtful rodent ulcer, in two alopecia areata, in one cheloid, and in one epithelioma. Of the cases of lupus vulgaris eight might be claimed as instances of cure, in three the treatment was abandoned on account of failure of health, while in six the result was unsuccessful or unsatisfactory. The remainder were still under treatment. Of the cases of rodent ulcer seven were cured, in two the unsatisfactory state of the patients' health made it impossible to go on with the treatment, and two were still under treatment. Of the cases of lupus erythematosus in two the result was satisfactory, in three the treatment had to be discontinued, and one was still under treatment. Of the cases of cheloid and epithelioma nothing definite could yet be said. In the successful lupus cases the number of sittings varied from eight to 370. They were mostly favourable cases, in which the disease was superficial and of small extent. Brief notes of the cases were then given. Having stated the results which he had obtained, Mr. Morris proceeded to describe the manner in which the light rays produced their remedial effect on the diseased skin, and he mentioned some of the difficulties that interfered with their action. The application of the light was followed by an inflammatory reaction consisting in hyperæmia and redness, followed by the formation of a bleb which broke and dried in about a week into a thick yellow crust. Healing was complete in 10 days or a fortnight. In places where the tissues were loose—for instance, near the eye—there was often great swelling of the neighbouring parts. The intensity of the reaction varied in proportion to the intensity of the light and also according to the structural peculiarities of the patient's skin, and especially according to the local conditions produced by the disease. In persons with thin skins the reaction was greater, while it was less marked in coarse thick skins. The reaction came on from five or six to 24 hours after the application of the light. It was usually slight at the beginning of the treatment and sometimes became greater as it was continued. Even after prolonged treatment it still showed a tendency to increase rather than to diminish. The Danish physicians said that the treatment was painless, but this was not strictly accurate. There was, indeed, seldom anything that could be called pain at the time the light was applied, though sometimes a feeling of heat was experienced. But the after-smarting was often considerable, and the inflammatory phenomena constituting the reaction were also more or less painful. There was seldom any constitutional disturbance. In the case of ulcerated surfaces there was, of course, no blistering or crusting; a much larger number of consecutive applications could therefore be made without inconvenience to an ulcer than to an area of intact skin. Reaction was manifested by redness and soreness which were sometimes accompanied by some swelling of the surrounding parts and great tenderness on pressure. These effects were seen about the fourth or the fifth day, and if the applications were kept up the skin around the ulcer became inflamed. According to Mr. Morris's experience the remedial effect of the light rays was directly proportionate to the intensity of the reaction; the production of a considerable reaction should, therefore, always be aimed at. If the disease extended into the deeper layers of the skin, and if there was much scarring, this formed an obstacle to the penetration of the light rays. Another circumstance which made the passage of the rays increasingly difficult when the treatment was prolonged was the pigmentation caused by the frequently repeated applications of light. The amount of pigment naturally present in the skin must also be taken into account. Brunettes were not such good subjects as blondes, and the darker they were the less amenable were they to the light treatment. Hence there were great difficulties in applying it to patients of black or mixed race. When the disease extended deeply and there was great thickening and infiltration of the tissues—e.g., from previous treatment by other methods—it was difficult for the light to penetrate and a large number of exposures were required to make an impression on the mass of diseased tissue. The large extent of the area involved was sometimes a most serious difficulty, as only a small spot could be treated at a time, and thus it was scarcely possible to deal with all the nodules as they developed on the edge of the patch. The only hope of keeping pace with the disease in such cases was to retain the patient under treatment two or three hours daily. This was seldom possible as the patient could not spare the time or tolerate the prolonged immobility required. Moreover, the reactions tended to become so severe that they could not be borne. Cases in which mucous cavities were involved were unfavourable for the light treatment, but in such cases x rays were useful owing to their power of penetration. If the disease were extensive the treatment must at the best be tedious. It should be applied daily on six days a week if there were nothing—as, for instance, excessive reaction—to make interruption necessary. In cases where there might be a special urgency the treatment might be carried out twice a day without any ill effect. Mr. Morris remarked that the success of the light treatment depended more on the attendant who had the actual management of the details than on the medical men who had the supervision of the case. Her duties required not only intelligence or skill, but devotion, for

the work placed an enormous tax on the patience. Another condition of success was in the patient himself, to whom the absolute passivity enforced during an hour or one and a half hours daily for months together was apt to be exceedingly irksome. The length of time over which the treatment had to be prolonged was, indeed, one of the chief drawbacks of the method.

Dr. A. BARRY BLACKER (London) in continuing the discussion, said that he wished to compare the Finsen's light and x-ray treatment as regards their relative effects. The original light apparatus of Finsen was well known, but a modification which was now being extensively used in the treatment of lupus had been introduced by Dr. Lortet and Dr. Genoud of Lyons which was cheaper and more convenient, and which employed less current. Moreover, the exposure was only 15 minutes instead of 60 minutes daily, and the results from this apparatus were so far very satisfactory, but time must elapse before it could be proved to be equally efficacious. Dr. Blacker was now in his own practice employing both Finsen's and Lortet and Genoud's apparatus, using them both on the same patch daily, so as, if possible, to obviate in some measure the tediousness which was one of the drawbacks of this form of treatment. A comparison was then made between the reactions observed between Finsen's rays and the x rays on the skin; in the former case it occurred in from four to 24 hours, in the latter in from four to 24 days; the first was comparatively slight and easily controlled, the second was sometimes severe and an ulcer might be produced which might last for months. He wished to emphasise the fact that there was a definite danger of producing this intractable form of ulceration after the employment of the x rays. This could in some measure be guarded against by the employment of a "high" tube, by the protection of the surrounding skin with lead foil, and by watching with care the effect of short exposures on the patient. The reaction was more severe in fair people, in those who suffered from an irritable skin, and in neurotic individuals. In many cases, however, it could only be attributable to an idiosyncrasy. The action of the x-rays on lupus vulgaris was often very marked and was apparent after a few applications, sometimes, however, it was slow, and it was interesting to note that occasionally other patches of lupus than those which were being treated improved at the same time although they were not immediately under the influence of the rays. In the removal of superfluous hairs the action of the x rays was doubtful, as in all the cases in which he had seen the hair removed it had returned within the following six months; in tinea tonsurans it might be found useful. In the treatment of the pain accompanying ulceration he had found chloretone and orthoform of service. In conclusion, Dr. Blacker said that there was much to be learned about the treatment of skin diseases by means of light; especially was this the case as regards the employment of the x rays, which would appear to be a mixture of many kinds of light, some of which might produce harm. The difference between the action of rays from the violet end of the spectrum as employed with Finsen's apparatus, and the rays emanating from an x-ray tube were very marked; they differed in the reaction produced on the skin, in their penetrative power, in their mode of production, and in their employment. As regarded the rays, either from the sun or from the electric arc lamp, he considered that the results obtained in the treatment for lupus were sure and that they gave excellent results. On the other hand, he considered that much more had to be proved before the x rays could be considered as being safe or reliable.

Dr. J. H. SEQUEIRA (London) from an experience of 15 months' work at the London Hospital, where there were three lamps continually in use and where nearly 200 patients had been under treatment, had observed improvement in every case of lupus vulgaris. Cases of every degree of severity had been treated. In two instances where the disease was quite recent two applications had resulted in absolute disappearance of the lupus. In other and more extensive cases 200 and even 300 sittings had been given and the patients were still under treatment. He had found it very difficult to determine exactly when the treatment could be stopped with safety, and had seen cases where small recurrences had occurred. These were, however, easily cured. Dr. Sequeira quoted the latest statistics of Finsen's clinic, mentioning that over 130 patients were known to be free from recurrence from one to five years after treatment. In lupus erythematosus a certain proportion of cases did well, but in others there was no improvement at all. Those in which the erythematous element was very marked were particularly unsuitable. Dr. Sequeira then demonstrated his new lamp, modified from that of Lortet and Genoud, which was easily worked from an ordinary street service, and the manipulation was so simple that the great expense of the Finsen treatment could be materially lessened. Moreover, the sittings were of a quarter of an hour's duration only, and an area of skin one and a half inches in diameter could be treated at each sitting. Referring to the relative value of the Finsen and x-ray treatment, Dr. Sequeira had found that ulcerative forms of lupus yielded excellent scars with x-ray treatment, but in the scars typical lupus nodules were visible even when the treatment had been carried on for several months. He indorsed Mr. Malcolm Morris's experience of the value of x rays in lupus of the mucous cavities. Since his first case in June, 1900, he (Dr. Sequeira) had treated 45 cases of rodent ulcer with the x rays. The ulcers healed up rapidly and huge cavities filled up in a remarkable manner. Difficulty was experienced with the hard raised edge, and slight but easily treated recurrences had been observed. In his small experience of the treatment of cancer by the x rays he had found pain to be relieved and ulceration to be dried up, but in some cases the tumours grew rapidly in spite of the rays. A single case of nodulated leprosy of the skin had shown a marked improvement, the hard masses softening and becoming flat. The value of the x rays in diseases of the hair, especially sycosis, was commented upon, and the results achieved were regarded as being very satisfactory.

Dr. ALLAN JAMIESON (Edinburgh) remarked that his experience was limited to the x rays. His results had been very unsatisfactory in lupus vulgaris. Some paling but no cure had followed. In rodent ulcer he cited one superficial and extensive case which had been all but cured by the x rays combined with scraping. In another ulcer the nasal bones were involved, while in one part the disease was arrested; in another the ailment progressed in spite of, and while under, the rays. He regarded the rays as valuable means auxiliary to other and tried methods, but he could not see what advantage was to be derived over and above scraping, the use of the knife, and caustics.

Dr. H. A. G. BROOKE (Manchester) remarked that his experience was somewhat limited. He had been to Copenhagen and it was perfectly obvious that the results were infinitely better there than any which ensued from ordinary methods; the skin was healthier, smoother, and softer, and altogether he knew of no other therapeutic measure which could produce the same results. In a great many cases the disease started in the laryngeal duct, and it was absolutely necessary to reach this focus of disease to prevent recurrence. Finsen rays were not subject to the same dangers as the x rays, and he believed in the combination of Finsen and x rays as being the most efficacious, the latter being employed for the less accessible foci.

Dr. NORMAN WALKER (Edinburgh) was quite sure that in lupus vulgaris other foci of disease than those directly exposed to the light improved—e.g., those on the back while the face was being treated. He had in one case of lupus erythematosus had the most violent reaction, but the patient had undoubtedly improved in spite of this. As to favus this was in his experience a method which was quite unapproached. In one case he had had a patch on the scalp which very nearly sloughed. In tinea tonsurans he had not had very favourable results. In sycosis it was sometimes very favourable but at the cost of much tribulation to the patient. He thought it a pity that all other methods of treatment should be absolutely excluded. He had recently seen a case scraped 15 times which was most successful; and the galvano-cautery, acid nitrate of mercury, and the knife might be most important additions to the Finsen and x rays. The x rays should certainly be kept in the hands of the medical profession, and he wished to sound a note of warning in this sense. A form of quackery was arising which should be damped down at its inception.

Dr. G. G. STOPFORD TAYLOR (Liverpool) had employed x rays for the treatment of 22 cases of lupus, one case of scrofuloderma, five cases of rodent ulcer, one case of large ulcer of the left forearm after burns, one case of favus, two cases of epithelioma, and one case of pigmented carcinoma. As regards lupus vulgaris, he had observed, first, that when the rays were applied to a moist surface the discharge was lessened and became altered in character, assuming a purulent in place of a serous appearance; secondly,

that normal epithelium developed very rapidly and healing quickly followed; thirdly, that when applied to dry surfaces exfoliation of the epidermis took place and the part exhibited a dried and shrunken appearance; fourthly, that absorption of morbid products took place and resulted in a smooth, soft, and pliant scar; and fifthly, that an erythema of uncertain duration depending not altogether upon the length of exposure or on its strength always accompanied these changes, and that unless this was permitted to disappear between each successive application of the rays an aggravation of the disease occurred. This had happened in two instances in his experience, and superficial destruction of tissue took place in three cases as if an escharotic had been used. Too much had been expected from the x rays in the treatment of lupus. He considered their action to be of the nature of a stimulant, and that they should be applied as such, care being taken that over-stimulation did not occur. Any treatment of tuberculosis must of necessity prove tedious. With a view, therefore, to accelerating the action of the rays he had not hesitated in a few instances to employ in addition any other means which seemed requisite, and the result was most encouraging. While he had been able to remove all traces of secondary inflammation in some cases he had not succeeded as yet in causing the total disappearance of the characteristic apple-jelly nodules. The cases treated were not selected. Many of them had been under his care for years and some had undergone various operations, such as curetting, cauterisation, scarification, excision, and the injection of tuberculin, but under no treatment had he observed the same steady and painless tendency towards recovery as under the x rays. The effect of the rays upon that form of rodent ulcer which had a natural tendency to heal in one part while it spread in another had been a perfect revelation and cases were quoted in illustration. He had succeeded in removing most of the hair off the scalp of a lad suffering from favus, but the presence of the fungus was still in evidence. He had noticed that the rays had the power of exciting the rapid development and temporary growth of epithelium even upon the surface of carcinomatous ulcers though the pigmented tumour-cells could be clearly discerned through the new epithelium. In further proof of the remarkable effect of the rays in stimulating the growth of epithelium the case was quoted of a boy who had sustained a severe burn of the arm; where any healing had taken place the scar was hard and fibrous and the prospect of a very troublesome contracture looked ominous. The x rays were applied and the remaining part of the ulcer healed up rapidly with a soft and pliant scar, and the child had now a serviceable arm with a good movement.

Mr. J. HALL-EDWARDS (Birmingham) remarked that he had been obliged to discontinue the researches which he had commenced into this subject two years ago on account of his absence in South Africa. He thought that it was greatly to be regretted that no light had been thrown upon some of the most important points. From an examination of the interesting cases exhibited he had noticed that the same pigmentation which he always looked for during his treatment with the x rays occurred in cases treated by the Finsen light. He had hoped to have heard more of the theories which were to account for the phenomena produced, and he felt disappointed at the little progress which had been made in isolating the cause of the curative, and that of the hurtful, effects produced by the x rays. He had previously stated that in his opinion the effects were to a great extent electrical, and more especially those which had any therapeutic value. That some of the effects were due to the x rays or to some other rays which proceeded from an x-ray tube he was certain; but they could not make any true progress until experiments enabled them to isolate the electrical from the purely x-ray effects. What condition of tube was best suited to the treatment? It had been stated that the x rays encouraged the growth and multiplication of the tubercle bacilli. Was it not possible that their rapid multiplication under the influence of the x rays might bring about their ultimate destruction?

Dr. GEORGE B. BATTEN (London) advocated the use of the high-tension tubes. He believed that the x rays acted by stimulation of the healthy tissues and cells of the part and by over-stimulation of the microbes, which were, so to speak, "grown to death."

Dr. J. S. BOLTON (Nottingham) asked what was the cause of the cure. The high-frequency current produced many of the effects of Finsen and x rays, and it would, he believed, prove to be of great value.

Dr. RADCLIFFE CROCKER (London), in closing the discussion, congratulated the speakers on the accuracy and completeness of their remarks. He had had more experience of the Roentgen rays than the Finsen light, and had had some most excellent results. He had come to the conclusions, first, that in the favourable cases the results were as good as it was possible to achieve, but, secondly, that the number of such cases was not very large. The treatment must be limited in its scope owing to the expense and complexity of the apparatus, and when it was borne in mind that some cases wanted 300 sittings the applicability of the treatment must necessarily be limited. But the Finsen and x rays treatment had evidently come to stay. Nevertheless, it would be a great mistake to abandon the older and still excellent methods. He referred to a case in which Mr. George Pernet had performed multiple scarification in which the results could not have been surpassed. He (Dr. Crocker) had worked with Roentgen rays, chiefly with low-tension tubes, and he could not agree with Dr. Batten in the advocacy of high tension. The excitation of a small amount of inflammation was not altogether a disadvantage. Something like five ampères was, he believed, necessary. The real practical difficulty was to know the number of exposures necessary; one case would require 80 and another 24 exposures. The expense was an obstacle. A case could be scraped and while healing could be exposed to the rays. Some cases wanted one treatment and some another, and they must not limit themselves to one kind of treatment.

THE ANNUAL MUSEUM.

(Continued from page 341.)

II.—FOODS AND FOOD PRODUCTS.

There was an excellent display of special foods, although it must be admitted that novelties were rather the exception than the rule. Indeed, it is pretty safe to say that at least, and probably more than, three-fourths of the exhibits in this section were but a repetition of the display at Ipswich last year. There were, however, some notable exceptions, especially amongst milk and meat preparations. Milk and milk products were decidedly in evidence. Attention seems to have been devoted more particularly to the separation of proteids from milk in the form of soluble dry white powder. The evidence in favour of plasmon as a highly assimilable and nutritious "additive" in diet continues. The company's representatives (International Plasmon, Limited, 56, Duke-street, Grosvenor-square, London, W.) busied themselves in showing the visitors the number of useful ways in which plasmon could be employed. Amongst other things iced plasmon is worthy of notice. Another preparation of importance is the plasmon beef extract, containing 80 parts of plasmon and 20 parts of beef extract, representing the nutrient properties of milk and the stimulating properties of meat. Besides these there were plasmon cocoa, biscuits, and chocolate. The Aylesbury Dairy Co., Limited, of St. Petersburg-place, Bayswater, London, W., may lay claim to have presented a demonstration of a decidedly scientific character. Thus the rapid estimation of fat proteids and other constituents of milk was practically illustrated and other subjects practically discussed were the curdling of milk and the rapid estimation of acidity and the microscopic detection of the bacillus tuberculosis. Further useful demonstration was given on points connected with the chemistry of milk. The exhibits included a number of preparations of milk for invalids and infants. As is well known, the Aylesbury Dairy Company practise a system of control in connexion with all departments of their enterprise. Their laboratory staff consists of 15 medical officers, six veterinary surgeons, and three analytical chemists. As an example of milk produced in a thoroughly healthy way may be mentioned the germ-free invalid milk and the germ-free "motherised" milk exhibited by Mr. J. Carson of Crystalbrook Farm, Theydon Bois, Essex. This farm is a model of sanitary efficiency, and medical men who are interested are invited to inspect this farm and see for themselves how cleanly the production of milk can be carried on. We have recently had occasion to examine this milk and the results were highly satisfactory and such as would account for the remarkably favourable results which it gains when used in the feeding of infants and invalids. The specimens exhibited showed

a remarkable percentage of cream. The milk is derived from a special herd of Jersey cows, each of which is periodically inspected and examined. A very interesting and elegant milk product is casumen, shown by Prideaux's Pure Casein and Life Food Co., Limited, of Motcombe, Dorset. This is pure milk casein quite soluble in water. It occurs in the form of a fine white powder, and as our analysis has shown, contains over 90 per cent. of pure proteid. This preparation seems particularly well adapted for raising the nutrient value of many foodstuffs. It produces an excellent bread of uniform texture which keeps agreeably moist. Similarly it may be mixed with cocoa or put in tea or coffee or beef-tea or soup. Specimens of macaroni were shown containing a definite proportion of casumen. Pure casein preparations were also shown on the stall of Messrs. Callard and Co., of 25, Regent-street, London, W., whose diabetic foods are well known. Amongst other special foods shown by this firm were the celery and spinach biscuits prepared for the use of sufferers from gout and rheumatism. The Protene Co. of 36, Welbeck-street, Cavendish-square, London, W., presented a number of preparations containing protene. Amongst these may be mentioned protene biscuits, protene bread, and protene flour. Protene bread for diabetics is a good preparation containing a quite unimportant quantity of starch. The Manhu Food Co., of Liverpool and of 88, Charing Cross-road, London, W.C., exhibited a number of so-called diabetic foods, and the Cheltine Foods Co., Limited, of Cheltenham, showed a similar series of food specialities. Both companies appear to claim the same thing—that is, that the starch has been so treated as to become modified and no longer producing glycosuria. These views are opposed to the opinions of leading authorities on the subject. We welcome the departure introduced by the Myosin Albumin Meat Extract Co., of 107, Strand, London, W.C. It cannot be too widely known that the majority of meat extracts do not contain the nutrient properties of beef, but merely the extractives, which at their best are only appetising and stimulating but not nourishing. Myosin albumin is prepared in such a way that the albumins, globulins, and iron albumins are preserved in it intact as they exist normally in beef, while the coarse fibroid matter of beef is completely rejected. The preparation known as "ma.me.co." is described as consisting of pure myosin albumin from which the extractives, waste, or "gouty" products have as far as possible been removed. The preparations are of undoubted nutrient value and represent a step in the right direction towards making beef preparations of real food value. We have noticed before the table-salt known as "Cerebos," prepared by the company of that name of Newcastle-on-Tyne. It is a great improvement on the deliquescent salt which was exclusively used formerly for table purposes. Messrs. Keen, Robinson, and Co. of Garlick-hill, Cannon-street, London, E.C., exhibited their well-known preparations. Amongst these may be mentioned mustard prepared from the best seed, Robinson's patent barley and patent groats, and, lastly, "barlikos," a preparation of barley flavoured with lemon which makes an excellent and wholesome summer drink. The stall of the Bovril Co., Limited, of 152 to 166, Old-street, City-road, London, E.C., was covered with a great number of special foods now connected with their name. We did not notice any new additions to their already long list of meat preparations. An interesting food preparation, and one that deserves more attention than has hitherto been give to it, is marvis (The Patent Fish Food Syndicate, Limited, Berry Yards, Greenock), which may be described as a fish flour. It is said to be prepared from freshly caught fish, it keeps well and has a good flavour, and makes excellent nourishing soup. Liebig's Extract of Meat Co., of 9, Fenchurch-avenue, London, E.C., exhibited their well-known preparations, including lemco, a concentrated extract of beef, oxo, "a new meat beverage" containing a special preparation of fibrin, and peptarnis, a valuable preparation, being a concentrated peptone of beef. We could find no new preparations on the stall of Mellin's Food Co., Limited, of Marlborough Works, Stafford-street, Peckham, London, S.E., although the cod-liver oil emulsion and the lacto-glycose are worthy of mention. Some interesting preparations were exhibited on the stall of the British Somatose Co., of 165, Queen Victoria-street, London, E.C. Somatose is made from beef and, as we have shown, consists largely of albumose with some peptone. This valuable food preparation may now be had in fluid form and it is also combined with iron, forming a soluble digestive iron albumin. Messrs. Cadbury Bros., of Bourneville, near Birmingham, still claim for their cocoa that it is a pure article and entirely free from foreign additions, such as alkalies, kola, malt, and hops, a statement which we have entirely confirmed by laboratory experiment. An excellent substitute for lard for cooking purposes is albene, a highly refined vegetable fat prepared by Messrs. Broomfield and Co. of 83, Upper Thames-street, London, E.C. It is a clean white fat well adapted for frying and for pastry and does not turn rancid. In our analytical columns we have already shown that the shredded wheat biscuit (Shredded Wheat Co., 6 and 8, Eastcheap, London, E.C.) contains the entire wheat, and this fact, coupled with the further important fact that it is thrice cooked, makes the preparation a valuable food rich in flesh-forming as well as bone-producing factors, proteids, and phosphates. Messrs. Cosenza and Company of 95, Wigmore-street, London, W., showed their excellent Maggi's consommé and Maggi's tonic bouillon containing assimilable iron. We have already analysed and tried these preparations with satisfactory results. The only example of condensed milk shown was that of Mr. Henri Nestlé of 48, Cannon-street, London, E.C. As we have previously pointed out, one very important feature of this preparation is that it contains a maximum of cream. At the stall of Mr. Hoff, of 29, Newgate-street, London, E.C., besides the well-known nourishing fluid malt extract, was shown a preparation known as "ironol," containing iron in an organic form. A valuable series of special foods was presented to view by Messrs. G. Van Abbott and Son, of Baden-place, Borough, London, S.E. These were their well-known gluten bread, soya bread, biscuits, cakes, and every conceivable form of food adapted for the diet of the diabetic patient, being practically starch free. The exhibit also included some excellent soups, meat lozenges, beef biscuits, and hypophosphite of lime biscuits. The Maltine Manufacturing Co., Limited, of 24 and 25, Hart-street, Bloomsbury, London, W.C., exhibited their well-known maltine preparations. Maltine is a thin, syrupy, powerful starch digestive and may be had associated with cod-liver oil, coca wine, cascara, hypophosphites, Easton syrup, &c. Messrs. Carnrick and Co. acted in conjunction with the Maltine Co., their address in London being the same. They showed their liquid peptonoids with and without coca, beef, milk, and digested gluten. Their exhibit included also beef peptonoids, a very rapid form of nourishment and containing a very high proportion of nutritive material, and, lastly, Carnrick's soluble food for infants, consisting of evaporated cow's milk with the addition of dextrine and soluble starch. Messrs. Brand and Co. of Mayfair Works, Vauxhall, London, S.W., showed their well-known specialities for invalids, including meat juice, peptones, meat essences, and lozenges. Their exhibit was much the same as in previous years, though we may notice that they have comparatively recently added a nutrient powder dried in such a way as to leave the proteids uncoagulated.

(To be continued.)

THE COMING ELECTION OF DIRECT REPRESENTATIVES TO THE GENERAL MEDICAL COUNCIL.

THE meeting arranged by Mr. T. Garrett Horder with the permission of the British Medical Association for the discussion of the question of the election of the Direct Representatives and to hear addresses on medical politics from the present Direct Representatives for England and Wales took place at the Ladies' College, Cheltenham, on August 2nd. Mr. Garrett Horder was in the chair, and called first on Mr. George Brown.

MR. GEORGE BROWN said: I do not see that we can regard this meeting as one that can come to any definite conclusion by way of deciding as to who should or should not be recommended to the constituency as those who should be selected for representation. I should have preferred that some programme had been drawn up or some hint as to what would have been expected of me. Am I to give an account of my stewardship? If so, I am not prepared for that, except that during the time I have represented you I have endeavoured to carry out the programme on which I came before you as a candidate and on which I was successful in 1896. I hope that I have succeeded in satisfying those who placed me in that position. I have received no complaint from anyone about any vote I have given on the Council. On the contrary, I have received numerous letters from all parts of the country expressing approval as well as letters from different associations. I have reason to believe, therefore, that my stewardship

has not been altogether unsatisfactory to those who sent me to the General Medical Council, and under these circumstances I hope I am not egotistical in believing that my candidature in the coming election is justifiable and it may possibly be agreeable to the medical men of England and Wales to give me their votes again. I have no hesitation in saying that having put my hand to the plough I have no intention of turning back. I must say as a general practitioner it is undoubtedly a great tax upon one's time. There may be people who say, and very often the remark has been made of me, that "Brown has a nice fat thing, his fees for the General Medical Council are 5 guineas a day." All I can say is that if it were only for anything of that kind I should wash my hands of the whole matter and should proceed no further. But there is nothing to be got out of it, not even by a poor general practitioner, for you must remember the loss of practice which it entails and the loss of time necessarily incurred in going about to meetings all over the country which is not done without putting your hand in your pocket. I may mention that my midwifery practice has absolutely gone. In my practice the 50 cases in the year I used to attend have dwindled down to one, and in that one I could not accept a fee because it was a domestic matter. So that I think that that will effectually dispose of one of the great arguments put before you in the press that those who oppose the Midwives Bill are doing it for interested motives. I have opposed it for 10 years on the principle that I do not believe that a partially educated woman after three months' education should be given a diploma or licence to practise midwifery and be allowed to use dangerous drugs which they are advised to do by those who lecture to them. I have seen a lecture by a midwife to midwives in which it was stated that treatment had been carried out in a bad case of phlegmasia dolens without any mention being made in that lecture of a medical man being called in to the case. I think that that is likely to occur very largely indeed if the Midwifery Bill is passed. You do not want me to discuss that to-day. No resolution will be put before you because it would be objected to on the ground that the meeting is not representative enough. I will now refer to an incident which occurred during my last candidature. I was invited to a meeting at Manchester, and some notice was taken of a remark of mine then that if I remained on the Council for three years without something being done that I would resign my seat. I did not resign my seat at the end of three years because I found that your sending as Direct Representatives to the Council men from your own body had a considerable effect and influence on some important matters on which you thought deeply. One of the items in my programme was to see that the General Medical Council made more stringent regulations with regard to the suppression of unqualified practice. You will admit that since the last election much has been done by the Council. They passed that memorable resolution which caused some dissatisfaction in certain districts for some time prohibiting unqualified assistants. The effect of that has been of a most satisfactory kind and it is shown by the salaries which are now obtainable by medical men. Five years ago medical men almost went down on their knees to the medical agent to get them employment as "locums" or assistants, and those who were in some cases delighted then to get two guineas a week are now standing out for five guineas a week and getting it; that is due in a great measure to the action of the General Medical Council which I consistently supported in declaring that the employment of unqualified assistants would be regarded as disgraceful conduct in a professional respect. On another point I had a mandate, in regard to preliminary education, and a great deal has been accomplished in that respect, although the effect is not very apparent yet, but the regulations are agreed to which will have a great influence indeed in the future admission of candidates to the medical profession. There will be a higher standard of preliminary education exacted and that will have an important effect on the future of the profession generally. The raising of the curriculum has had a good effect in keeping out a large number of men who were not perhaps so well educated as they might have been. There is, however, still much to be done. I believe we are on the right road and in the course of time we shall do a great deal which many of you desired to have been done already for years past and almost despaired of seeing accomplished. I rather expected that we should have had others speaking previous to the candidates, and I would, perhaps, then have had to answer some questions. I will, however, anticipate by saying what I have to say with regard to that unfortunate instance which has occurred during the time in which I was a member of the Council. I refer to the case of Kingsley Hunter. Though I cannot acquit myself from all blame entirely in that matter, yet when you understand the true facts of the case you will, I am sure, acquit me and my colleague Mr. Horsley of any blame. All cases in which prosecution is asked for are submitted to the Penal Cases Committee and they report to the General Medical Council. When the prosecution of Hunter was decided upon his name was dovetailed in in a list of men who were practising without any qualification—that is to say, quacks. All those names were put together, and I have the written evidence of some members of the General Medical Council that when Mr. Hunter's name was dovetailed into this list of quacks not one of us knew that this man Hunter was a qualified man. Had that been known I, of course, should not have consented to his prosecution, and it was with the greatest amazement that I saw many months afterwards that by order of the General Medical Council this unfortunate Mr. Hunter had been prosecuted for taking a medical title. I am sorry this has occurred, but personally I do not have it on my conscience that I was guilty of any dereliction of duty in regard to that matter except that I might have called for all the evidence in respect to those five or six names, among which Hunter's name occurred. I certainly think we ought to have had a summary of the evidence, but then if I had applied for such I should have been told I was wasting the time of the Council, as I have been told before. I regard my position as one of extreme difficulty, though not so bad as it was; I think my election at first was rather resented by some of the old members of the Council, because it occurred more than once that when I had a motion down on the paper and wanted to say something someone popped up and moved the previous question which unfortunately was invariably carried. That, however, does not occur now. There has been much change in the *personnel* of the Council; something like half the Council has changed in the five years. In regard to everything I bring forward now I must say that I am always treated with respect and that facilitates one's position at the Council. One feels more and more at home. As I get to understand the old members better I think at the same time they also get to know George Brown better, and there is more kindly feeling between us in consequence. I shall not say anything in regard to any other candidate who may come forward except that I feel in justice bound to say that my colleague Mr. Horsley and myself have worked very harmoniously and happily together during the time we have been on the Council. I am glad to say this because I opposed Mr. Horsley's candidature and supported that of Sir Walter Foster. I thought Sir Walter Foster might have been more useful than Mr. Horsley to general practitioners because of his influence in the House of Commons. We want more representation in the House of Commons and I thought Sir Walter Foster would serve us better; but whoever was sent no one could have better served the cause of the general practitioner than Mr. Horsley, and if I have the happiness and honour to again represent you on the Council I know this that I hope I shall have the opportunity of working with Mr. Horsley on the General Medical Council. I trust that we shall have three representatives sent who will work harmoniously hand in hand because it weakens Direct Representation when we find one voting on one side and one on the other. It is essential we should all be united in carrying out the work of the profession.

Dr. A. B. RITCHIE (Manchester) asked if Mr. George Brown believed it probable that the practice of midwives could be restricted by legislation so as to make the attendance of a medical man compulsory in cases of confinement, also what policy did he support in connexion with such legislation as was threatened?

Dr. BROWN said he would oppose the present Bill *in toto*. He was in favour of a Bill for the better training of nurses by public bodies for poor people and believed that would meet the case.

Dr. RITCHIE said that Mr. Brown had not answered his questions.

Mr. R. H. WOLSTENHOLME (Manchester) asked if Mr. Brown supported the scheme of the Medical Guild.

Mr. BROWN said the scheme was on the lines that he would support, but it required amplification.

Mr. J. S. WHITAKER (Great Yarmouth) said that Mr. Brown spoke of a scheme they had not seen and his answer was unintelligible. It would be more satisfactory if Mr. Brown answered the question whether he believed that it was reasonable or possible to expect the legislature to pass any measure requiring every obstetric case to be attended by a medical practitioner. It was no use medical men crying for the moon, something should be asked for which was likely to be granted.

Mr. BROWN said he did not quite understand the question in that direct way.

The CHAIRMAN, at the request of the meeting, then read out Dr. Ritchie's question to Mr. Brown who replied that he was sure the legislature would do nothing of the kind. From conversation with Members in both Houses he was certain they would never make that restriction. They could not force a man into a woman's lying-in room and it would be unreasonable to expect it.

DR. GLOVER'S ADDRESS.

Dr. J. G. GLOVER said: I recognise the necessity for brevity and shall try to keep myself within the time allowed. I should like in the forefront of my remarks to express the hope that we may have at the next election a larger vote of the profession than on any previous occasion. It will be impossible to get any real addition to Direct Representation if three-fourths of the profession stand aloof and leave the election to groups and small numbers. Certainly the larger the vote and the better the class of men sent as Direct Representatives the more will be the influence of your representatives. A very serious blow was inflicted on Direct Representation after the last election when one of the gentlemen elected, after clamouring for a seat, left the Council without ever waiting to discuss the main question he was supposed to understand and for the solution of which he was chosen. I have enjoyed your confidence for 15 years—that is, for three separate quinquennial periods—and I am asking you once more to re-elect me. Nobody knows better than I do my many defects and shortcomings, but I have come to the conclusion, in spite of these, that I shall consult the interest of the cause of Direct Representation by sticking to my guns and by seeking re-election. Few members of the Council have seen more of its working; few have had a larger experience of its principal committees, few know better what the Council can do and what it cannot do than myself. I do not boast of this. It is simply the length of my experience in the Council as your representative and my knowledge of its members, their attitude of confidence and kindness towards me over this period, that make it so. The Council is not perfect. It is too large. It wants reconstruction and it wants larger powers. But in my opinion it has great powers for good even in its present form—and I see no immediate chance of it being materially altered. It has done very much already, as Mr. Brown has admitted, and may do much more both for the public and the profession—for medical education, and for the purity and dignity of the medical profession, which are of enormous consequence to the public. And I believe sincerely that for those ends the presence on the Council of general practitioners—men acquainted with general practice, with its problems, its difficulties, its grievances—are essential and will be acceptable to the Council.

I will dispose first of the midwives question. Even those who differ from me on this matter will allow that I have never shirked the question and that I have consistently held that some regulation of midwives' practice is urgently required and can scarcely be had without legislation. My support will only be given to a Midwives Bill on two or three very strict and well-defined conditions. First, that the practice of unlicensed midwives be stopped and penalised; and, secondly, that the midwife shall be required on the occurrence of any irregularity or abnormality of mother or child to apply to a registered medical practitioner, thus placing her in a distinct, non-medical, subordinate position. I have a third condition to which I attach much importance, though I have not been able here, as in the other points, to get the Medical Council to agree with me—viz., that the local sanitary authority of each district shall be required to pay medical men so appealed to by the midwife a reasonable fee (not less than a guinea). I have two objects (I am sure my opponents do not believe that I have any personal object in the views I hold on this question)—I have two objects in supporting a Midwives Bill which I will shortly state; I need not labour them. The first is, I wish to abolish the existing untrained ignorant midwife—the Sarah Gamp—believing her to be dangerous and deadly to poor lying-in women who are entitled to the greatest consideration. The second object I have is to abolish the unauthorised function of the Obstetrical Society of London in giving certificates to midwives. Here I must be quite explicit. I

could be no party to blaming the society for its efforts to raise the character of midwives and to give them some training. I am quite sure that the General Medical Council would find itself without public support if it sought to abolish this function of the society without seeing how the function was to be assigned to some other body. Some gentlemen think that we should punish the leaders of the Obstetrical Society of London, and we have only one punishment and it a capital one—that we should remove their names from the Medical Register. Does any gentleman think that the most advanced medical reformer—Mr. Brown himself, say—would venture to rise seriously and make a definite proposition to that effect in the General Medical Council? To do Mr. Brown justice I must say he has had the chance of doing this any time in the last five years and he has not done it. Gentlemen, what has the Government, the Privy Council, done with one of the chief ornaments of the Obstetrical Society of London? It has made him a Crown Member of the General Medical Council. The only way, and the proper way, to get rid of the irregular and unauthorised action of the Obstetrical Society of London is to create a board, acting under law, to do what it is doing and for which it has in time past had the approval of the public and the tacit approval of the General Medical Council. These are my principal objects in supporting with strict conditions a Midwives Bill. And I would say in dismissing this subject that I have another reason. I feel convinced that such legislation will come to pass and that it will be done independently of the medical profession if it loses the chance of shaping it and controlling and regulating the practice of midwives. Gentlemen, in this matter, as in some others, Mr. Brown poses as the saviour of the medical profession. He has a medical paper all to himself which in the interval of elections undergoes a sort of hibernation, and just before the great event comes to life again and demonstrates to its readers that I am the great sinner—the Jonah—and he is the man to elect to represent the profession. Now I do not believe that the majority of the profession differ from me in thinking that something must be done to get rid of the untrained, dirty, ignorant, often intemperate midwife. What has happened? In the last five years Mr. Brown has never once that I remember in all the midwifery discussions moved the Council to declare that it disapproves of all such attempts at legislation. But he leads his followers to think that he is going to do so and that some great change is going to occur. Gentlemen, let me tell you such a change cannot occur without the Council stultifying itself. I shall tell you what would happen. Mr. Brown would not get a seconder, as happened on a recent occasion to which I shall have to allude further on. I prefer more practical courses and to help the profession to regulate legislation which it cannot and, in my opinion, ought not altogether to prevent.

Gentlemen, the midwives question is only one of a score or a hundred questions that have to be considered by the General Medical Council. I regard the Midwives Bill question as practically disposed of by the General Medical Council. It devoted a special session to it. It has spent thousands of pounds and whole weeks over its principles and it cannot well reopen the question. But there are many other questions to be dealt with by the General Medical Council. Let me remind you of a few of these. The Council is *par excellence* a Council of Medical Education, which must have for its basis a sound preliminary education. I tried to do my duty as your representative on this question. I may be excused for saying that in the very first session after my election to the Council I drew attention to the want of practical teaching in clinical and therapeutical subjects and of examinations in such subjects. The defect was admitted. I was put on the Education Committee. The resolution I proposed, a resolution on the subject, has been fruitful of good.

The Council has to consider the means of securing the maintenance of a high professional standard of conduct and of work with adaptation to practice among the working classes of the community and for this end has suggested the formation of a Conciliation Board representing friendly societies on the one hand and medical men and their interests on the other. The principle of a Conciliation Board has been approved by a committee of the Council of the British Medical Association and there is reason to hope much from the application of it in the improvement of the position and power of the medical profession in relation to the great friendly societies. Personally, I think the General Medical Council entitled to great credit for its trouble in this matter.

It has to discourage degrading and unprofessional modes of promoting practice—especially advertising and touting. I had the pleasure of proposing a resolution meant to discourage these practices. It has been very effective where the evidence of such practices and of the doctor's knowledge of them has been sufficient. One or two large insurance companies with medical aid business have given up the business, and several medical officers have resigned their position under this clause. Mr. Brown tried to counsel the Council to do something more drastic and did not get a seconder.

The Council has been much concerned with the proofs of the large numbers in the community who have no medical attendance and whose deaths are uncertified. I had the honour of waiting on the President of the Local Government Board with Sir William Turner and Sir Dyce Duckworth as a deputation on this subject. We had a most sympathetic hearing and have reason to hope that legislation will result that will brace our registration system up and will regard uncertified deaths in a Christian community as a scandal to be inquired into and prevented.

The Council is a complex organism and has much to do in coördinating and harmonising the action of the various medical authorities. There has lately been exhibited an unseemly and injurious friction between the Royal Colleges of England and the General Medical Council. The best friends of medical education must wish to see the end of this discord which threatens to throw back education. I have tried and shall continue to try to urge a *modus vivendi*. The Colleges and the Council can both help each other, while not encroaching on each other's province. At present the question is raised at each Council meeting and threatens to waste much of the Council's money.

My last remark leads me to say a word about the finances of the Council. The money of the Council is the money of the profession and our sittings have lately been so prolonged that our expenditure has exceeded our income. Some gentlemen have advised an annual fee to be paid instead of a single fee for registration. I am much in favour of a single and final payment as at present instead of what would be an annual tax and I believe that with some reforms in the conduct of our discussions the ordinary income of the Council will suffice to meet its expenditure. These, gentlemen, are a few of the subjects that engage, and must engage, our attention, to say nothing of those most painful cases of misconduct which call for the exercise of the disciplinary powers of the Council or of the need for more disciplinary power both for it and the individual medical authorities which we all recognise. To hear some fluent critics you would think that the General Medical Council does nothing and goes on very slowly. Gentlemen, I do not think so. I think that the changes which are taking places in the profession—in its curriculum, in its education, in the public estimate of it, and in the State estimate of it—are enormous and in some aspects serious. I believe if the General Medical Council proceeds in its steady improvement of education and in its steady demand for the maintenance of professional conduct even in the poorest sections of practice it will command more and more the respect of the public, of the medical authorities, and of the registered practitioners of the country who at an election time are called to send men to represent them. Remember that as regards the election it is not the General Medical Council that is on its trial so much as Direct Representation itself. I can imagine nothing more worthy of representation at the Council than the views generated and impressed upon us by the ordinary and varied life of daily and nightly practice and if such experience is at the service of Direct Representation I have good hopes for its extension.

MR. HORSLEY'S ADDRESS.

MR. VICTOR HORSLEY said: I have much pleasure in attending this meeting because I am hopeful that it will be the precursor of many similar meetings and that it will be an annual fixture at the annual meetings of the British Medical Association. With regard to my views on the midwifery question they are exactly what I circularised in my address to the profession when I was a candidate for the General Medical Council four years ago. I still think that registration of existing and prospective midwives is necessary and whether they are called midwives or midwifery nurses some form of registration is necessary and will be insisted on by the Legislature. It is also in accord with my principles that what both Dr. Glover has suggested and what has been more fully suggested in the *Medical Guild Quarterly* should be carried out. I think it is a perfectly feasible way of dealing with the subject. That is my personal opinion. Our duty as members of the General Medical Council is to see as far as we can that the Government will not lend their support to any measure which does not embrace the 10 points that are given in detail in the minutes of the General Medical Council, the 10 points which the Council consider are essential in this subject. This brings me to the action of the Government not only towards us in regard to the midwifery question but also in regard to other questions. You must know that the General Medical Council is practically a sub-department of the Central Government; its head is the Privy Council; the head of the Privy Council is the Duke of Devonshire. If you will study the minutes of the Council in respect to previous questions you will find that the President of the General Medical Council is in communication with the Privy Council in various ways. You will find the letters that passed between the two bodies, and yet in spite of this repeated communication between these bodies extending over all these years it is a fact that the Privy Council has during the last 10 months treated the General Medical Council with superlative contempt. You will find all the facts in our minutes. The Privy Council is at the present moment utterly disregarding the General Medical Council and its 10 points which include the safeguards necessary in midwifery legislation. And why? Because of what is called the respect of authority and because of what is known as negotiations. We cannot parley with the enemy at the gate; it is ridiculous for us to consider that as a sub-department of the Government we can through our President or through anyone else influence the Privy Council privately. We cannot do it. The only way to do it is through the voice of the profession. Now, thanks to the work which has been effected at this meeting of the British Medical Association, I believe that we shall get this power, but until then let me warn this meeting that at the present time the General Medical Council is unable to do what it wishes to do in this matter. I personally am responsible for endeavouring to send up a protest to the Privy Council against its behaviour towards us as its sub-department. Dr. MacAlister, however, opposed me and succeeded very easily in persuading the Council, so that no protest was sent. All that I can do is to try to endeavour to support the authority of the General Medical Council and I should like to point out that this action of the Privy Council during the last 10 months is no isolated instance. For example, the Executive Committee of the General Medical Council took upon itself to conduct negotiations with the Privy Council on the subject of reciprocity of practice in Italy. Now whatever views we hold, and I hold there is no true reciprocity as arranged, at least we are entitled to consideration; but no, the Privy Council passed an order entirely disregarding our views as a Council. So the Privy Council for a second time in 10 months has treated the General Medical Council with contempt. As regards the work of the Council in education this matter of the Colleges is really a very grave question. It is a step taken by the Royal Colleges which is subversive of the present five years' curriculum and of the best interests of the medical profession and it will ruin students' registration. The representative of the Royal College of Physicians, which body is now tottering to financial ruin, did not hesitate to state in the Council, and his speech unfortunately made a most favourable impression on the Council as a whole—this representative actually said that he was willing to ruin students' registration simply to carry out the wishes of his College. I warn you not to enter into any compromise on this matter. If you support this view you will do what in the opinion of all teachers of medicine in this country will lead to an irreparable injury to the medical profession. As regards preliminary professional education headway is being made in this matter by the Council itself quite irrespectively of this step taken by the Royal Colleges. This question of education is coincident with the question of the one-portal system. Until this plan is endorsed, as I hope it will be by the real voice of the profession at Manchester, we shall not get any further with the General Medical Council, because the compromise with the two Royal Colleges is nothing more than the general feeling of the corporations represented in the Council. The Royal Colleges are going to get a greater number of students to enter for their examinations and the Colleges will receive the fees. The other

licensing bodies naturally think. Why should not we do the same? By the constitution of the General Medical Council it is unable to receive a scheme for the one-portal system for the Council is composed of commercially competing bodies and is thus really unfit to control medical education. I pass now to the necessity of having a Medical Act Amendment Bill. You may ask me, How do we stand in the General Medical Council with regard to this matter and what chance is there of success? I am rather surprised at the result of three and a half to four years' work on the Council. When I first entered it my time was so taken up with obtaining ordinary constitutional methods of procedure that for about a year I was unable to gauge progress. We have, however, swept away the men who were bitterly hostile to the profession. It has caused hard words and some misunderstanding, but the men have gone and in their place we have a younger set of men, amongst them Deans of Medical Schools who are keenly interested in general medical education. These men are men to whom you can appeal with reason and the outlook for the Medical Act Amendment Bill is better. But the body of the General Medical Council consider that such a Bill should come from the British Medical Association, and I am willing to accept that position. Let us meet them half-way, let the British Medical Association go on with the work of the Parliamentary Bills Sub-committee, and let us bring to the General Medical Council the Bill that they ask for. In such a Bill I think I ought to say that the mention of unqualified practice should take first place, but as the price of the purchase of that of course the House of Commons will require, what we also require, that the constitution of the Council shall be changed and that it should be deprived of its corporate body—that is to say, its commercial character—so that it shall be made a representative council, and if the House of Commons demanded it there should be an addition of one or two more Crown members. There must be a bargain and we must give something in return if we are to get anything out of the House of Commons. I have left my next point to the last because I believe it is a lever by means of which we shall reform the General Medical Council. I come to the question of money, which, as usual, is at the bottom of most things. We have now got to the bottom of the pocket of the Council and the Council is in a bad way and may find it necessary to go to the House of Commons and ask for some change in legislation which it can put into operation in order that it may live. So that I am hopeful in this matter of finance. You will remember that three years ago I raised the question of finance after a very short examination of the statement of accounts that sufficed to show me—and I am no expert in finance—that the finances of the Council were wholly unsound. I brought the matter forward in the Council three years ago and was duly "pooh-poohed" by Mr. Bryant and Sir Dyce Duckworth, the honorary treasurers of the Council, mainly, I must say, by Mr. Bryant. However, after a long series of wrangles we at last succeeded in getting a report from an expert in finance, Mr. Frere. Mr. Frere's report confirmed in every minute detail not only the facts which I had brought forward two or three years before but Mr. Frere proposed as reforms everything that we had been asking for. Now that is a most remarkable thing, for I had no communication with Mr. Frere and I never had told him of the discussions that had taken place in the reform party, but, nevertheless, he introduced all the possible reforms we had thought of. Among these reforms there is one which I must deal with. Dr. Glover has raised the question and given us his opinion upon it. I refer to the annual registration fee, and am a firm believer that an annual registration is a necessity in legislation. It will be necessary to tell the House of Commons, and it will be necessary also to convince the House of Commons, that if you have an annual registration fee of £1 it will give the General Medical Council an income of £30,000, and that is amply sufficient for the Council to be really operative in the interests of the public and the profession. To return, however, to the question of the annual registration fee, which I personally consider is a necessity, that has never been properly discussed, and as we look to Manchester as usual for reform so we look to the meeting at Manchester to have that point thoroughly threshed out so that we shall know what is the voice of the profession in the matter. It is, of course, impossible to give an account of one's stewardship in the time allotted, but I have endeavoured to do that in the reports to the profession I have from time to time issued, and I shall continue that action if you re-elect me. I only wish to conclude by expressing my intense gratification that we are at last likely to be in a position through the British Medical Association to be able to instruct our representatives as to what they ought to do.

Mr. GEORGE JACKSON (Plymouth) said: When I was a candidate for the General Medical Council on a former occasion I polled over 4000 votes. I was not so well known then as now and having been asked by the Incorporated Practitioners' Association I come forward as a candidate again. In regard to the question of the midwives the trend of opinion in the House of Commons seems to be, and I have talked to Members of Parliament about it, in favour of some form of registration. We ought to try to guide legislation so that it shall not be registration of midwives as midwives, but rather as nurses, and I would say that all nurses should be registered. It should be impossible for any woman after just three months' training to be turned out as a midwife. I maintain that the Government has insisted on the provision of medical assistance for the poor, but it is a farce to a very great extent. I maintain that there should be a system by which nurses should also be provided by corporate bodies and guardians. I read in the *Medical Guild Quarterly* a statement from Mr. Colin Campbell that that was carried out at Saddleworth, the payment for the services rendered being regarded as a loan. In Jamaica it was also done and there advances were made to pay for the doctor and for the nurse. A poor person in an infirmary has a nurse of a sort, but in his own home it is a different matter. District nurses should be appointed who might give lessons in elementary sanitation and attend to ordinary dressings. The population was not increasing and one woman in 15 was said to die in her first confinement. I do not know if it is true, but at any rate the mortality is very considerable, and it behoves us, therefore, to take more care of our population-producing people, to take more care of the mothers of the country and not to allow them to die in this way, and to take more care of the children. He suggested that the British Medical Association should introduce a Bill into Parliament on the lines indicated in the *Medical Guild Quarterly* and there should be a regular system of nurses, that they should have from two to three years' training before they were allowed to have anything to do with nursing as a sufficient training was necessary so as thoroughly to drill the nurses in their work, because if taught only for a limited time the nurses lapse into careless ways. It was more important for the public at large to be well nursed than to be well doctored. The whole body of the profession as represented by the British Medical Association must push forward legislation. The representation of the College of Surgeons should not be through the Fellows alone but by the Members also, and so also with the other bodies. Even if you could not get Direct Representation you would have a better representation on the Council and have more weight with the profession. I should be in favour of more Direct Representatives and of cutting up the country into smaller electoral districts. The General Medical Council would thus be able to promote legislation favourable to the profession and to the country at large. In the House of Commons you must insist that it is for the benefit of the country at large. We must improve matters in that way. For instance, as regards quacks who are allowed to practise as aurists and oculists, they should be prosecuted. The lawyers do not allow anything of the sort in their profession. It would be a good plan if every medical man had to pay a small annual sum each year which would then enable the Council to act. In such benighted countries as the Transvaal medical men pay a licence and quacks are legally prosecuted. The examination for the entrance to the medical profession should be raised. Another important point is that a Bill should be introduced into Parliament for the better registration of deaths, because of the enormous number of uncertified deaths. We have examples of this in cases in which chemists attend people and simply write a note to the registrar informing him of the death. Stillbirths also should be registered. I do not suppose I have touched on all the points, but I think I have touched on the main points. I cannot claim personal experience like the present Representatives, but if elected I shall carry out the duties as far as I can.

Dr. S. WOODCOCK, J.P. (Manchester), said: I do not know that I am a candidate. My position and attitude in regard to this question is this. In the first place, we are entitled to a representative from the north of England, and I do not think that all our representatives should be in London. Other places should have some share in representation. When approached I said that if it was apparent that the bulk of the profession in the north of England desired me as a candidate I was at their service. I have no personal ambition in the matter. I believe that I am misunderstood with regard to this midwives question. I have never been in favour of initiating legislation on this question. When I spoke in Manchester some six or seven years ago I spoke in condemnation of those self-elected men who were arrogating to themselves the right of giving certificates to women. I thought that these men should be prevented from so doing, but when I approached members of the House of Commons and the House of Lords I was met with a simple reply: "What do you propose instead, because their must be some legislation, and things can't go on as they are and something must be done." I was then a member of the Parliamentary Bills Committee and of the Council of the British Medical Association. The then chairman of the Parliamentary Bills Committee requested that a sub-committee should be appointed and that the question should be considered. Mr. Horsley and Mr. Brown were on that committee with myself and we suggested a plan for the registration of midwifery nurses and so we called our Bill. We aimed at two or three principal things, limiting the function of the registered midwifery nurse in a definite way. We made it a necessity, under conditions clearly laid down, that she should call in medical aid, and we disposed of the men who were giving the certificates. But all this was only done with the idea of it being submitted to Parliament if the other proposed Bill came before the House. Our Bill was to be put in only in order that it should not be said that we had nothing to suggest. I consider that to insist on a medical man being called in in every case of confinement is impracticable and it is not possible for the Government to consent to that. This present Government appears to be in for a long tenure of office and there is a weak Opposition. You may judge what the attitude of the Government is on this question when I tell you that with all our efforts we could never get at the President of the Privy Council. We tried again and again to get him to receive a deputation but we were never allowed to see him. On the other hand, the promoters of the Midwives Bill have had no difficulty and they were encouraged by him to go on. No difficulty was placed in their way and when a vacancy occurred on the General Medical Council of a Crown nominee the appointment was given to the man through whose efforts more than anybody else's the first and the worst Registration Bill was brought forward and a letter from Sir John Williams was read by Lord Balfour blessing the Bill, and the Government has put Sir John Williams on the General Medical Council. Is the Government going to agree to a Bill like the Medical Guild Bill? I do not disapprove of it, but I want something to be done in my lifetime and I want something done now. Is it desirable that these men should be allowed to go on giving these midwifery certificates? is it desirable that you should have people unregistered and consequently uncontrolled? or is it not better that something should be done which should be a safeguard to the public? If there was any unanimity of the profession and if there was any encouragement from the public you might hope to insist on a medical man being called in to each confinement. But it is absurd to believe in any such thing which is so far from being practical. In our Bill we laid down distinctions and there were certain stated circumstances under which a woman should be compelled to call in a medical man, but for every confinement it is not practicable. If I go to the General Medical Council I must go and be able to feel that I am speaking what I really believe. I would not propose resolutions which could not be passed and would be ineffectual if they were. I am generally in approval of the attitude and policy of Mr. Horsley and I agree with him on this midwives question. I am not supporting the measure in favour of the registration of midwives. Our Bill was altered in its title by the Council of the Association—the name was not altered by the Committee. I have also taken some part in attempting to draft a Medical Act Amendment Bill and there I have sufficiently indicated my opinion in regard to the representatives of the corporate body. These should be elected by the licentiates and members of those bodies. I think that we should aim at having the one-portal system. It is not creditable that we should have so many methods for men to enter into the profession. If the Council is paralysed for funds we should go to Parliament and get permission

to have an annual registration fee. Lawyers do it and so do other men who manage their affairs better than we do. I know something of the work of general practice and have had some experience in public life and if the medical profession should think that I have the ability and the tact to represent them sufficiently well I am prepared to place myself at their service.

Dr. RITCHIE said after the speeches they had listened to the midwives question must be excluded from that election; to introduce it would be throwing dust in the eyes of the electors.

Mr. G. H. BROADBENT (Manchester) said that he thought just the opposite. It was most essential to prevent the establishment of an inferior order of practitioners.

The CHAIRMAN then repeated the following question to the candidates: Did they believe it probable that the practice of midwives will be restricted by legislation so as to make the attendance of a medical man compulsory in cases of confinement? which was replied to in the negative.

In reply to Dr. A. COX (Gateshead) Dr. GLOVER said that he voted for the present form of certificate issued by the London Obstetrical Society and it would be remembered that it used to be a diploma. He would continue his present attitude until some legal body was provided to look after that business.

Dr. MAJOR GREENWOOD said that the General Medical Council had made the Obstetrical Society alter the diploma issued to midwives into a certificate. What was it that led those who held certificates to go on using the term "L.O.S."?—that could only imply licentiate. That was the most important point and that was omitted by the Council. It was a deception and the General Medical Council should take notice of it because licentiate was a medical title.

Mr. WOLSTENHOLME asked if Dr. Glover had afforded Mr. Horsley any assistance when Sir William Turner, the chairman of the General Medical Council, had refused to allow Mr. Horsley access to the documents of the Council.

Dr. GLOVER said that he did not remember the facts as to the first resolution of the Council about the documents. The ultimate resolution, however, by which the documents were accessible was moved by him. He explained that he had no other object than to secure first the care of the documents, and secondly the right and convenience of members in the use of them. The present resolution of the Council was drawn up by him in place of the first one which, though he supported it, was not quite satisfactory.

Mr. WOLSTENHOLME asked with regard to the Royal Colleges and their scheme, it appeared to reduce the medical curriculum to four years. As Dr. Glover had spoken of a *modus vivendi* would he say if that was to prevent the five years' course being shortened to four years?

Dr. GLOVER replied that he had no intention of disturbing the five years' course and there was not one instance in which the Colleges had accepted less than a five years' curriculum. They included in that curriculum one year passed at a preliminary educational institution approved by them.

Mr. WOLSTENHOLME asked if Dr. Glover agreed to that.

Dr. GLOVER answered that he agreed with that till the Council had power to interfere with the legal rights of the Colleges, otherwise they would be landed in an appeal to the Privy Council which they would lose.

Mr. WOLSTENHOLME then turned to Mr. Horsley and asked him whether he had found any difficulty in his attempt to inspect the documents of the Council, whether he had been thwarted in that application, and whether Dr. Glover had given him proper support on that occasion. He also asked whether Mr. Horsley was in favour of the *modus vivendi* with the Royal Colleges permitting the five years' course to be curtailed to four years.

Mr. HORSLEY said: Dr. Glover has told us that his memory does not serve him in regard to the first session when the question of the documents came up. I have to say that mine does; the facts are burnt into my memory. The Chairman of the Council locked up the documents which were public property and which I had a right to inspect. When I made my protest I was opposed by Dr. Glover so strongly that actually I could not obtain a fair hearing. I am speaking of the first session which Dr. Glover does not remember. I was so strongly opposed that I could not obtain a fair hearing and during the whole of that week's work I was looked upon as a kind of outcast for having endeavoured to disorderly interrupt the Chairman. That was the state of affairs, but I carried my point at the next session and what Dr. Glover says is true. It was on his motion that the documents are now inspected. It is a ridiculous thing that there should have been any reason for such a proposal at all, but it is what we work under at the present time. With regard to the *modus vivendi* with the Colleges I want to say that the Colleges have legal rights under their charters and the Council has legal rights under the Medical Acts, but owing to the carelessness of the legislature when the Act of 1886 was drawn up purporting to be an Act to carry uniformity through all the corporate bodies, a clause was left out which should declare that the Council was the head of all these bodies. That clause having been omitted, if you were to bring the matter before the courts the courts would have to say both parties were in the right. That is the legal position and I intend to resist any attempt to spend the money of the profession in going to law in this matter. There is no possible *modus vivendi*. If the Council chooses to succumb to the Colleges that is possible, and unless the Direct Representatives can say with the voice of the profession behind them that the Council shall adhere to its former position a very grave injury will be done to the medical profession.

Mr. BROADBENT then asked if the candidates opposed legislation for midwives, making them independent practitioners, and was answered affirmatively.

Mr. BROADBENT again rose and wanted to know if the candidates considered that it was for the good of poor women that every case of midwifery should be more or less under the direct and personal supervision of a medical man even if details were conducted by a trained and registered nurse, and received affirmative replies.

Dr. C. H. MILBURN asked if the candidates would furnish reports to the profession like those supplied by Mr. Horsley to which he was answered in the affirmative.

Dr. S. CRAWSHAW wanted to know if any legislation in midwifery was to be restricted to a particular class, and was replied to by the candidates to the effect that the legislation was for the poor, but that it was impossible to prevent the public using their own discretion in the matter.

Dr. MAJOR GREENWOOD pointed out that in the event of legislation for midwives particular attention should be directed to securing local registration by the sanitary authorities.

Mr. WHITAKER, in moving a vote of thanks to the candidates for their speeches, especially welcomed the candidates from the provinces. They had three representatives who were in London and it was for the profession to show that they preferred two of the candidates to be from the provinces. It was very satisfactory to note how competent Mr. Jackson and Dr. Woodcock were to represent the profession on the General Medical Council. If they elected one representative for London with Mr. Jackson from Plymouth and Dr. Woodcock from the north it would be most satisfactory. It was very satisfactory to be certain that Mr. Jackson and Dr. Woodcock, if elected, would coöperate with their London colleague.

Dr. MILBURN, in seconding the vote of thanks, pointed out the advantages of electing two out of the three candidates from the provinces.

Mr. WOLSTENHOLME regretted that Mr. Whitaker had suggested to the profession whom they should elect.

Mr. WHITAKER replied that he did not suggest anything. He said it would be gratifying if one candidate was elected from London together with Mr. Jackson and Dr. Woodcock from the provinces.

Mr. WOLSTENHOLME said the profession would not stand Mr. Whitaker's suggestion for one moment. Medical men were quite able to criticise and judge for themselves.

A vote of thanks to the Chairman terminated the proceedings.

THE PATHOLOGICAL INSTITUTE OF THE LONDON HOSPITAL.

THIS compact and excellently arranged building serves the threefold purpose of hospital mortuary, post-mortem room, and pathological laboratory and is so constructed that each part can be entirely shut off from the other two when necessary. It stands in a large quadrangle and is entirely separated from the hospital buildings by an air-shaft. It consists of two storey, the lower devoted entirely to the mortuary and post-mortem room arrangements, the upper to the pathological laboratories. On the ground floor there is a long corridor or main passage reaching from end to end of the building, to which the bodies are brought from the hospital on enamelled metal slabs slightly curved and fitted underneath with sleigh-runners to facilitate movement of them from the trollies on to the storing-frame. They are taken to the mortuary store, which is an offshoot of the main corridor and contains a very convenient contrivance for storage of the bodies previously to section. It consists of a large metal frame made in segments and easily taken to pieces, either in part or entirely, for purposes of cleaning. The metal slabs are arranged so as to slide easily over rollers placed transversely in each segment of the frame. There is an admirable arrangement by which any exudation can be drained from these slabs. To one side of this store is a very effective cold chamber of simplified construction, worked by the carbon-dioxide process and capable of storing 12 bodies; to the other side is a tank-chamber for storage of material. From the mortuary store the bodies can be taken into the post-mortem room for section. This is a large room, lofty, well ventilated, and with excellent lighting both from the top and sides. It contains two white enamelled porcelain tables capable of rotation and discharging into an open circular gutter, and there is also in another part of the room a tank for sections under water or other fluid. There are cupboards for appliances, reagents, and other apparatus. Leading from the main room is a smaller one of similar character with one table for special necropsies.

The students' entrance to the post-mortem room is in the front of the building and is quite separate from that from the main corridor at the back through which the bodies are brought and into which they are again taken after section and conveyed to the main mortuary. This is a large room at the end of the corridor, containing a frame in all respects similar to that in the mortuary store room, on which the bodies remain till placed in the coffins, when they are conveyed into a simple but tastefully decorated mortuary chapel, to which the patients' friends are admitted through a small lobby with an entirely separate entrance in the front of the building. Noteworthy features of this department of the building are the excellent arrangement of the various rooms about the main corridor, the frames and slabs for storage purposes, and the conveniences for the friends to view the bodies.

The pathological department is on the first floor and

has an entirely separate entrance in the front of the building, though it can be entered from the post-mortem room direct by those with a pass-key. It consists of a large laboratory, a bacteriological room, private rooms for the director and two assistants, a chemical laboratory, and a research laboratory, with preparation and mechanics' rooms. The main laboratory is a large and lofty room with excellent light in all parts, with benches, lockers, and stain cupboards, for 12 workers, seven feet of bench space being allowed to each, with separate sink and gas appliances. The cupboards are removeable to facilitate cleaning of the laboratory, and the stain cupboards are fitted with wooden doors to enable the stains to be kept away from the light. There are separate microscope lockers at one end of the room. Two medium-sized sinks are placed in the middle of the room, with racks over them for reagents, and are fitted for the dissection and preparation of specimens. There is a large gallery extending round all four sides of the laboratory, conveniently arranged for the storage and preparation of material while under investigation. The bacteriological annexe to this room is for the investigation of material obtained in the post-mortem room. The director's and the assistants' private rooms are fitted for research work, as also is the research laboratory which can accommodate two or three workers engaged on special work. The chemical laboratory is arranged with benches and racks for five men, with special slate slabs for Kjeldahl determinations and stone slabs for combustions.

The whole building throughout is lined with glazed brick, with terazzo flooring, and can therefore be easily cleaned. The ventilation is good and is effected by a number of large lamp ventilators, supplemented by electric fans in certain of the rooms. It is evident that very great care and consideration have been given to its construction and the arrangements are admirable in every way. It forms a very striking and noteworthy addition to the resources of the London Hospital and will doubtless attract many workers to avail themselves of the almost unrivalled opportunities afforded for pathological study and research.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6096 births and 4658 deaths were registered during the week ending July 27th. The annual rate of mortality in these towns, which had been 15·1, 15·6, and 17·9 per 1000 in the three preceding weeks, further rose during the week to 21·2. In London the death-rate was 18·2 per 1000, while it averaged 23·2 in the 32 provincial towns. The lowest death-rates in these towns were 9·7 in Croydon, 10·8 in Derby, 12·3 in Cardiff, and 12·4 in Halifax; the highest rates were 30·0 in Birkenhead, 30·2 in Portsmouth, 31·7 in Sheffield, and 34·3 in Liverpool. The 4658 deaths in these towns included 1508 which were referred to the principal zymotic diseases, against 431, 567, and 897 in the three preceding weeks; of these 1191 resulted from diarrhœal diseases, 114 from measles, 68 from diphtheria, 64 from whooping-cough, 45 from scarlet fever, and 26 from "fever" (principally enteric). No death from any of these diseases occurred in Halifax; in the other towns they caused the lowest death-rates in Plymouth, Derby, and Oldham, and the highest rates in West Ham, Portsmouth, Birkenhead, Liverpool, Burnley, Leeds, and Sheffield. The greatest mortality from measles occurred in West Ham, Birmingham, Birkenhead, and Gateshead; from whooping-cough in Brighton, Swansea, and Sunderland; and from diarrhœal diseases in Portsmouth, Birkenhead, Liverpool, Burnley, Leeds, and Sheffield. The mortality from scarlet fever and from "fever" showed no marked excess in any of the large towns. The 68 deaths from diphtheria included 28 in London, five in Sheffield, and four in Salford. No fatal case of small-pox was registered during the week in any of the 33 towns. There were 11 small-pox patients under treatment in the Metropolitan Asylums hospitals on Saturday, July 27th, against five, six, 12, and 14 at the end of the four preceding weeks; two new cases were admitted during the week, against two, six, and five in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2974, against 2918 and 2907 on the two preceding Saturdays; 374 new cases were admitted during the week, against 363, 324, and 371 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 165, 133, and 135 in the three preceding weeks, declined again during the week to 133, and were 43 below the average. The causes of 51, or 1·1 per cent., of the deaths in the 33 towns were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Salford, and in 13 other smaller towns; the largest proportions of uncertified deaths were registered in Swansea, Birmingham, Liverpool, Halifax, Sunderland, and Newcastle.

In 33 of the largest English towns 7180 births and 4926 deaths were registered during the week ending August 3rd. The annual rate of mortality in these towns, which had increased from 14·8 to 21·2 per 1000 in the five preceding weeks, further rose last week to 22·4 per 1000. In London the death-rate was 20·0 per 1000, while it averaged 24·0 in the 32 large provincial towns. The lowest death-rates in these towns were 9·7 in Croydon, 11·4 in Halifax, 11·6 in Wolverhampton, and 13·1 in Bristol; the highest rates were 30·2 in Liverpool, 31·0 in West Ham, 31·7 in Newcastle, and 33·0 in Gateshead. The 4926 deaths in these towns included 1755 which were referred to the principal zymotic diseases, against 567, 897, and 1508 in the three preceding weeks; of these, 1436 resulted from diarrhœal diseases, 120 from measles, 69 from diphtheria, 56 from whooping-cough, 43 from scarlet fever, 30 from "fever" (principally enteric), and one from small-pox. The lowest death-rate last week from these diseases were recorded in Croydon, Plymouth, Bristol, Wolverhampton, and Halifax; and the highest rates in West Ham, Liverpool, Manchester, Salford, and Preston. The greatest mortality from measles occurred in West Ham, Birmingham, Salford, and Sheffield; from scarlet fever in Blackburn and in Preston; and from diarrhœal diseases in West Ham, Portsmouth, Liverpool, Manchester, Preston, and Sheffield. The mortality from whooping-cough and from "fever" showed no marked excess in any of the large towns. The 69 deaths from diphtheria included 28 in London, six in Leeds, five in Leicester, and five in Sheffield. One fatal case of small-pox was registered last week in London, but not one in any other of the 33 large towns; 13 small-pox patients were under treatment in the Metropolitan Asylums hospitals on Saturday, August 3rd, against 12, 14, and 11 on the three preceding Saturdays; four new cases were admitted during the week, against six, five, and two in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 3091, against 2907 and 2974 at the end of the two preceding weeks; 391 new cases were admitted during the week, against 324, 371, and 374 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 135 and 134 in the two preceding weeks, further declined to 125 last week, and were 43 below the average. The causes of 43, or 0·9 per cent., of the deaths in the 33 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Nottingham, Bradford, Leeds, Newcastle, and in 11 other smaller towns; the largest proportion of uncertified deaths were registered in Liverpool, Preston, Sunderland, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·0, 18·4, and 17·2 per 1000 in the three preceding weeks, rose again during the week ending July 27th to 17·8 per 1000, but was 3·4 below the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 14·2 in Aberdeen and 15·1 in Dundee, to 22·8 in Leith and 22·9 in Greenock. The 567 deaths in these towns included 99 which were referred to diarrhœa, 16 to measles, nine to whooping-cough, six to scarlet fever, two to diphtheria, and two to "fever." In all, 134 deaths resulted from these principal zymotic diseases during the week under notice, against 101 and 89 in the two preceding weeks. These 134 deaths were equal to an annual rate of 4·2 per 1000, which was 2·7 per 1000 below the zymotic death-rate during the same period in the 33 large English towns. The fatal cases of diarrhœa, which had been 45 and 29 in the two preceding weeks, increased during the week to 99, of which 56 occurred in Glasgow, 11 in Edinburgh, 11 in Dundee, eight in Leith, five in Paisley, and five

in Greenock. The deaths from measles, which had been 25, 24, and 22 in the three preceding weeks, further declined to 16 during the week under notice and included 11 in Glasgow and five in Dundee. The fatal cases of whooping-cough, which had been 25 and 22 in the two preceding weeks, further decreased to nine, of which five were registered in Glasgow and three in Edinburgh. The deaths from scarlet fever, which had been four and seven in the two preceding weeks, declined again to six, and included four in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 95, 79, and 75 in the three preceding weeks, further decreased during the week under notice to 56, and were 11 below the number in the corresponding period of last year. The causes of 24, or more than 4 per cent., of the deaths in these eight towns were not certified.

The annual rate of mortality in the eight Scotch towns, which had been 18·4 and 17·8 per 1000 in the two preceding weeks, rose again to 19·8 per 1000 during the week ending August 3rd, but was 2·6 per 1000 less than the mean-rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 14·4 in Paisley and 15·8 in Aberdeen to 22·1 in Greenock and 22·9 in Dundee. The 630 deaths in these towns included 128 which were referred to diarrhœa, 28 to whooping-cough, 13 to measles, two to scarlet fever, two to "fever," and one to diphtheria. In all, 174 deaths resulted from these principal zymotic diseases last week, against 89 and 134 in the two preceding weeks. These 174 deaths were equal to an annual rate of 5·5 per 1000, which was 2·5 per 1000 below the zymotic death-rate during the same period in the 33 large English towns. The fatal cases of diarrhœa, which had been 29, 45, and 99 in the three preceding weeks, further rose last week to 128, of which 73 occurred in Glasgow, 15 in Dundee, 12 in Edinburgh, nine in Leith, eight in Greenock, four in Aberdeen, four in Perth, and three in Paisley. The deaths from whooping-cough, which had been 25 and nine in the two preceding weeks, increased again to 28 last week, and included 19 in Glasgow, five in Edinburgh, and three in Dundee. The fatal cases of measles, which had been 24 and 16 in the two preceding weeks, further declined last week to 13, of which seven were registered in Glasgow, three in Dundee, and two in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had been 79 and 56 in the two preceding weeks, rose again last week to 65, but were slightly below the number in the corresponding period of last year. The causes of 34, or more than 5 per cent. of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 20·7, 21·0, and 18·4 per 1000 in the three preceding weeks, rose again to 20·6 per 1000 during the week ending July 27th. During the four weeks ending July 27th the death-rate has averaged 20·2 per 1000, the rates during the same period being 15·8 in London and 17·3 in Edinburgh. The 148 deaths of persons belonging to Dublin registered during the week under notice were 16 in excess of the number in the preceding week, and included 26 which were referred to the principal zymotic diseases, against seven, 10, and 18 in the three preceding weeks; of these 20 resulted from diarrhœa, four from whooping cough, one from diphtheria, and one from cholera. These 26 deaths were equal to an annual rate of 3·6 per 1000, the zymotic death-rate during the same period being 5·0 in London and 2·6 in Edinburgh. The fatal cases of diarrhœa, which had been four and 14 in the two preceding weeks, further increased to 20. The four deaths from whooping-cough slightly exceeded the average number in recent weeks. The 148 deaths in Dublin during the week under notice included 35 of children under one year of age and 38 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons showed a slight excess over the numbers recorded in the preceding week. One inquest case and four deaths from violence were registered during the week; and 54, or more than one-third, of the deaths occurred in public institutions. The causes of six, or more than 4 per cent., of the deaths in Dublin were not certified.

The death-rate in Dublin, which had been 18·4 and 20·6 per 1000 in the two preceding weeks, was again 20·6 during the week ending August 3rd. During the past four weeks the death-rate has averaged 20·2 per 1000, the rates during the same period being 17·2 both in London and in Edinburgh. The 148 deaths of persons belonging to Dublin registered during the week under notice included 32 which were referred to the principal zymotic diseases, against 10, 18, and 26 in the three preceding weeks; of these, 23 resulted from diarrhœa, four from whooping-cough, four from cholera, and one from "fever." These 32 deaths were equal to an annual rate of 4·4 per 1000, the zymotic death-rates during the same period being 6·0 in London and 3·4 in Edinburgh. The fatal cases of diarrhœa, which had been four, 14, and 20 in the three preceding weeks, further rose last week to 23. The deaths from whooping-cough corresponded with the number in the preceding week, while the mortality from cholera showed an increase. The 148 deaths registered in Dublin last week included 43 of children under one year of age and 31 of persons aged upwards of 60 years; the deaths of infants exceeded the number recorded in the preceding week, while those of elderly persons showed a decline. Eight inquest cases and six deaths from violence were registered; and 53, or more than a third, of the deaths occurred in public institutions. The causes of five, or more than 3 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Surgeon T. D. Halahan to the *Pioneer*.

ROYAL ARMY MEDICAL CORPS.

Surgeon-Lieutenant-Colonel S. Farrant, West Somerset Imperial Yeomanry, is appointed to the medical charge of troops at Taunton. Lieutenant-Colonel Franklin is posted to the Cambridge Hospital, Aldershot, for duty. Lieutenant Wells is posted to the Royal Artillery hut barracks at Deepcut, Frimley, for duty. Lieutenant-Colonel A. H. Keogh, C.B., is appointed for temporary duty at the War Office. Lieutenant H. A. Davidson takes charge of the Station Hospital on Wilberforce Hill, Sierra Leone, and Lieutenant Hull is in the outlying country near Sierra Leone with a detachment of the West African Regiment.

The undermentioned Lieutenants to be Captains, dated July 27th, 1901:—George Snyder Nickerson, George Bedford Crisp, Robert Strickland Hannay Fuhr, Walter Jagger, George Johnston Stoney Archer, Robert Selby, Sidney Octavius Hall, Alfred Edmond Weld, James Stuart Gallie, Francis Joseph Christopher Heffernan, Arthur Edward Thorp, Cecil Wilmot Mainprise, Henry Herrick, Edward John Dobbin, James Cowan, Austin Romuald O'Flahertie, Henry Beckles Gall Walton, and Edmund Philip Hewitt.

Civil Surgeon Charles Glendenning Thomson to be Lieutenant. Dated August 3rd, 1901.

IMPERIAL YEOMANRY.

Derbyshire: Richard Mervyn Wilson to be Surgeon-Lieutenant. Dated May 24th, 1901.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Captain J. V. W. Rutherford to be Surgeon-Major. Dated August 3rd, 1901. Surgeon-Captain James Cameron, 6th Volunteer Battalion the Royal Scots (Lothian Regiment), to be Surgeon-Captain. Dated August 3rd, 1901.

VOLUNTEER MEDICAL STAFF CORPS.

The London Companies: Surgeon-Lieutenant E. B. Waggett to be Surgeon-Captain. Dated August 3rd, 1901.

The Woolwich Companies: William Henry Payne to be Surgeon-Lieutenant. Dated August 3rd, 1901.

VOLUNTEER CORPS.

Artillery: 1st Forfarshire: The undermentioned officer resigns his commission: Surgeon-Lieutenant R. Soutar. Dated August 3rd, 1901. 1st West Riding of Yorkshire (Western Division, Royal Garrison Artillery): Surgeon-Lieutenant A. L. Whitehead to be Surgeon-Captain. *Rifle:* 2nd Volunteer Battalion the Duke of Cornwall's Light Infantry: Surgeon-Captain W. Nettle to be Surgeon-Major. Dated August 3rd, 1901. 1st Dumbartonshire: The undermentioned Surgeon-Lieutenants to be Surgeon-Captains: D. Christie, dated July 17th, 1900; C. F. Spinks, dated

April 3rd, 1901. 19th Middlesex (Bloomsbury): Surgeon-Captain A. W. Wigmore resigns his commission. Dated August 3rd, 1901.

Correspondence.

"Audi alteram partem."

ARE BOVINE (PERLSUCHT) AND HUMAN TUBERCULOSIS IDENTICAL?

To the Editors of THE LANCET.

SIRS,—On March 10th, 1880, a communication was made by Professor Virchow to the Berlin Medical Society and subsequently printed in the *Berliner Klinische Wochenschrift* of April 5th and 12th following, "Ueber die Perlsucht der Hausthiere und deren Uebertragung durch die Nahrung," which may be advantageously studied at the present time. The results arrived at, after several years' experimentation under Professor Virchow's own direction, are given and great stress is laid upon the specific characters which distinguish bovine (Perlsucht) from human tuberculosis. The two following paragraphs are specially interesting—bearing in mind that they were written two years before Dr. Koch announced his discovery of the tubercle bacillus in the *Berliner Klinische Wochenschrift* of April 10th, 1882.

The fact that Klebs succeeded in developing pearl-nodules by injecting human tuberculous matter in the calf certainly seems to prove that the two products are of the same nature. Such a proof would unquestionably be conclusive did we not know that in animals various other substances give rise to tubercle, or to deposits similar to tubercle, just as readily as tuberculous matter from human beings does. A decision, however, on this point may, I think, be postponed until another question is settled which Herr Klebs has raised—namely, whether or not a special micro-organism or parasite exists to which tuberculous infection is due. At the present moment the existence of this micro-organism has not been demonstrated, and I certainly would not *d priori* deny its existence. We have, nevertheless, every reason to wait and see whether a micro-organism is or is not the common source both of tubercle and of pearl-nodules.

In the meantime, I think it important we should recognise that Perlsucht (bovine tuberculosis) runs a different course from tuberculosis in the human subject. I would point specially to the fact that ulceration is directly associated with caseous degeneration. The ulcer is produced by softening of the caseous matter (aus dem Käse geht durch Erweichung das Geschwür hervor). If any deposit similar to tubercle does not undergo caseous degeneration there is then no tendency to ulceration. This is precisely the condition in bovine tuberculosis. In cattle we do not find phthisis ulcerosa developed from Perlsucht, but instead we find firm tumours which become larger and harder the longer they last and which may finally reach the size of a man's head. These are important differences, and in the meantime we may, I think, be content to designate pearl-nodules as pearl-nodules and tubercle as tubercle. If we wish to express a dogmatic view of the matter we may say that pearl-nodules represent tubercle in cattle, but we must always maintain that both the course they take and their structure are different to what we see in the human subject. *In any case we must bear in mind that, as yet, no individual has ever contracted pearl-nodules from eating the flesh of animals affected with bovine tuberculosis*—therein lies the theoretical difficulty (Jedenfalls muss man sich erinnern, dass noch niemals ein Mensch durch den Genuss perlsüchtigen Fleisches Perlknoten bekommen hat—Das war die theoretische Schwierigkeit).

I am, Sirs, yours faithfully,

Cambridge, August 3rd, 1901. P. W. LATHAM.

"THE SALE OF DRUGS BY MEDICAL GRADUATES."

To the Editors of THE LANCET.

SIRS,—I am instructed to send you the annexed copy of a resolution recently adopted by the Senatus Academicus of this University and to request that you will kindly give it a place in the next issue of THE LANCET. I may mention that a similar resolution has been adopted by the University of Aberdeen.

I am, Sirs, yours faithfully,

L. J. GRANT,
Secretary of Senatus.

University of Edinburgh, August 6th, 1901.

[COPY.]

"Whilst it is admitted that the exigencies of practice in certain localities may sometimes render it unavoidable for a medical practitioner to supply to his patients the remedies which he prescribes—the Medical Faculty of this University is of opinion that it is undesirable and detrimental to the position of medical graduates of the University that this custom should be followed under other circumstances; and further, it regards the sale of objects other than remedies by its medical graduates as, under all circumstances, to be strongly deprecated."

THE EDUCATION AND EXAMINATION OF OFFICERS FOR THE ARMY.

To the Editors of THE LANCET.

SIRS,—In the discussion in Parliament upon the subject of army reform one of the most important considerations should be the education and examination of officers.

In submitting the following observations I venture to premise that few men in my profession have earned a better right of counsel than myself, since I have served one of the largest and most renowned public schools of England for a period of 30 years and have thus been enabled to perceive and to weigh the good and evil features in the system of forming and educating officers.

It is not many years ago that the boy who could pass into the army from school was a *rara avis*. For most lads had to seek the intervention of that class of teacher called the "crammer," to whom many parents and boys owe a deep debt of gratitude for assistance at a time when little other help was accessible. In recent years the public schools have seen the error of their ways and have removed the difficulty by preparing boys for admission direct to Woolwich and Sandhurst with marked success. This course has also involved the advantage of preserving the continuity between school life and the army.

I am not concerned in discussing the character of the *education* in practice for the purpose required, beyond observing that the education of a considerable proportion of young Englishmen is somewhat hampered by the requirements of the military entrance examinations, which is shown by the fact that of the large numbers who are specially prepared for this profession about one-third only, roughly speaking, are able to obtain commissions, while the remaining two-thirds have become specialised to their own detriment. The numbers vary year by year according to the requirements of the army, the actual figures for 1897, the year before any war preparations were made, being 1300 candidates for 373 commissions. If a general school education is a sufficient preparation for the universities and for the learned professions it ought to be adequate for the army without any special preparation prior to entry at Woolwich or Sandhurst. If not, then so much the worse for the education. Why should such a requirement be necessary in a public school as an army class? If it be why should not the public schools be requested to provide navy, university, clerical, medical, legal, and commercial classes? The whole system of preparation for the army is defective. The school education for the army, as for all other professions, should be that of English gentlemen and nothing more.

But more unwise still is the mode of *examination* of boys for entrance to Woolwich and Sandhurst, where the capacities of the candidate are not considered as a whole; but the test is restricted to the quantity of mental food he has been able to digest.

The examination of candidates is biennial and takes place at various centres for convenience. The whole of the candidates undergo the mental examination in various subjects, for which, to put it shortly, the following marks are assigned: 5000 in mathematics, 4000 in languages, and 5000 in other subjects. *And not a solitary mark is allotted to physique!* By physique I do not mean size; for some of our most illustrious officers have been small-made men, who seem more in demand now than ever. But I refer to the possession of capacious chests, good limbs, general vigour, and sound health.

The candidates who have qualified in the mental examination, and for whom commissions are available, are then submitted to the ordeal of a physical examination. And here I hold that an element of unfairness is discernible, not from the personal action of the medical examiner or from the personal conduct of his director, but from the faulty system in vogue which permits the injustice and which requires rectification if candidates are to receive their due and the army is to secure the best type of officer. For while brains are imperative in modern warfare, staying power is equally necessary. At this physical examination the qualified candidates who are mainly rejected are those in

whom some organic defect or disease has been discovered. But there is another class which is also sometimes thrown out, and rightly so. The injustice, however, lies in the fact that neither parents nor candidates are given to understand the position. The boy may be perfectly sound in every respect, but cursed with a notoriously unsuitable or poor physique, rendering him quite unfit for a soldier's life. He is, however, rejected with some general excuse, which is eminently unsatisfactory to parents.

This error requires amendment; and I submit the following suggestions upon the point.

Inasmuch as a really vigorous physique is essential for an officer as well as sound mental calibre, it is incumbent on the authorities, in order that the most suitable officers may be secured, to follow some such course as that which I now propose, for such a course would put a spoke in the wheel of physical education at school more than any other method that could be devised; and the candidates' physique, as well as that of the nation generally from the love of imitation, improved by leaps and bounds.

The medical officers deputed to examine candidates, while not knowing the names of candidates or their position in the mental examination, should be directed to award marks, exactly as in the former examination, in accordance with the physical fitness—the maximum number of marks being 2000, being an eighth of the whole assigned, which is not erring on the side of excess to insure a good physique in an officer of the army of Great Britain. And every candidate should previously understand that the physical examination will refer not only (1) to organic defects or disease, but also (2) to general physique, notwithstanding organic soundness. In this way parents would appreciate at the threshold of his career the boy's likelihood of obtaining the total qualifying marks; in many cases the chagrin of failure would thus be avoided; and the lad's education would not be interfered with by the preparation which the army examination so unfortunately entails.

No greater difficulty exists in pursuing this plan than in examining in mathematics or languages. This physical examination, however, requires reconsideration in other aspects. For instance, directions should also be issued to the medical examiners that, while candidates should be assigned a less number of marks when physical defects, such as the albuminuria of adolescents or slight varicocele, are present these defects should not necessarily exclude lads from the army.

Having long desired to speak upon this question of the training and examination of candidates for commissions in the army I have now availed myself of the opportune moment when the subject must secure a parliamentary discussion such as it has not received for generations, in the belief that the most effective officers will now be secured, worthy candidates will not be discarded, and unsuccessful applicants will not suffer a break in their education without compensating gain to those who happily succeed.

I would finally add that in the testing of candidates insufficient attention appears to me to be given to what I may term *general* characteristics, so far as these can be detected (and they should be carefully sought for) in an examination. I mean the apparent alacrity of intelligence which may exist quite apart from largeness of knowledge and for army purposes forms the superior gift—a quickness of resource; the faculty of keen observation; the possession of common sense; and, in short, a general smartness of body and mind.—I am, Sirs, yours faithfully,

CLEMENT DUKES, M.D. Lond.,
Rugby, July 19th, 1901. Physician to Rugby School.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE."

To the Editors of THE LANCET.

SIRS,—I note with pleasure that Dr. Andrew Wilson in his letter in THE LANCET of July 20th, p. 170, does not attempt to prove a negative. He is good enough to give three reasons for declining to believe that a dragon sat curling his whiskers on the cross of St. Paul's, and very properly adds, "Now, judged scientifically, I say we have no evidence in this case that dragons exist." His attitude is admirable, and I am proud to say that it is one which I have adopted for many years. *I* say that his statement that acquirements are transmissible is wildly incredible and I ask for evidence. He refers me to the works of a number of biologists. I hope that he will forgive me when I say that I have not the time to expend on this mass of obsolete literature. I had to wade through it once and I thank heaven the task is done. But I offered in the most explicit terms to deal with any statements or arguments from the works of these gentlemen that Dr. Wilson cares to quote, and my offer still holds. Dr. Wilson replies that he did bring forward evidence. Here are his words. "He says nothing, for example, of the experiments I alluded to on the division of ova, each division reproducing a perfect animal, and yet he avers there is no evidence on my side for him to criticise." Well, but where is the evidence? I can detect only a confusion of ideas. If Dr. Wilson will tell us what character was acquired and transmitted I will deal with it. He says that I pay no heed to the authority of Spencer, Eimer, and others. As a fact I do not. Deference to authority is destructive to all scientific thought. But if the appeal be made, if we try to settle this question by counting heads, I daresay I could mention 20 authorities to one that Dr. Wilson can mention. Biologists who believe in the transmission of acquirements are now so rare that they complain that they cannot get a hearing. Dr. Wilson says that our argument is reaching the *tu quoque* stage. It is quite true. Here is the *tu quoque*. I say to Dr. Wilson, "Prove an affirmative. Out of all the millions and trillions of characters acquired by living creatures prove that *one* is transmitted." Dr. Wilson replies, "No, *you* prove a negative. Out of all the millions and trillions prove that *none* is transmitted." I am sure that the *tu quoque* is a very pretty one. Were acquirements transmitted a child might answer my demand in five minutes. Omniscience and eternity would hardly suffice to answer Dr. Wilson's demand. Dr. Wilson says: "He asks me for evidence that acquired characters are *never*[1] transmitted." Really I think the printer's devil has been at work. That question precisely Dr. Wilson asked of *me* and I can hardly find words to express adequately my sense of the outrage on logic.

Mr. Cunningham, writing in THE LANCET of July 6th, p. 51, says that I am too dogmatic. The quality of my dogmatism is by now apparent. It consists in a refusal to accept other people's dogmas when they are not supported by evidence. He says: "The question is not whether somatic cells are concerned in reproduction, but whether changes in the somatic cells may affect the powers of development, or, to use a convenient term, the determinants, of the reproductive cells." Mr. Cunningham is hardly correct. The question is not whether changes in the somatic cells can affect the germ cells, but whether changes in the somatic cells can *so* affect the germ cells that *similar* changes are reproduced by the offspring—for example, whether the amputation of a tail tends to cause a lack of tail in offspring subsequently born. Mr. Cunningham declares that excessive drinking tends to make people neurotic and that the neurosis is inherited. He says that he knows of instances in his own experience. I hope that he will let us have that evidence. For 18 months the late Research Committee of the Society for the Study and Cure of Inebriety sought it and failed. Mr. Cunningham, a distinguished biologist, is probably not familiar with the study of alcoholism and will therefore forgive me if I warn him against certain pitfalls which beset the feet of the inexperienced. It will be useless to bring forward instance of drunken parents whose children are neurotic. I can bring forward any number of instances of drunken parents whose children are not neurotic and of neurotic children whose parents are not drunken. Moreover, people naturally neurotic tend to become drunken and offspring tend to inherit the inborn traits of their parents. Mr. Cunningham lays stress on the excessive use of alcohol and says that intemperate habits are often developed after the victims have produced all their children. But insurance companies refuse to accept intemperate lives, and their statistics prove conclusively that even among these picked lives, from the age of 25 years onwards, there is a marked difference in the survival rates of abstainers and non-abstainers. He says that there is some reason to believe that the children of the aged are born old and as an example states that there is reason to believe that the younger children of a family have greater intellectual powers than their elder brothers and sisters. This, he alleges, is due to the facts that men continue to develop intellectually till late in life and that they transmit

[1] The italics are mine.

the acquirement. The whole of this statement, if correct, is of extreme importance. By all means let us have the evidence. I may say at once, however, that the statement that the intellectual powers increase till late in life appears to me more than doubtful. It is probable that man's intellectual powers are greatest in childhood. It is then that he makes his principal acquirements, that he is most capable of learning. Consider the vast mass of information—language, reading, writing, &c.—that a child acquires in the first few years of his life. Later, he is in a position of advantage because he is able to make use of his piled-up data. If I studied law for 10 years, no doubt I should become a better lawyer, but I do not think that I should have greater intellectual powers.

I must apologise for the length of this letter, but the fault is not mine. My opponents make assertions; I am obliged not only to re-state their assertions, but to furnish rebutting evidence. It would be easy to write a volume in reply to Mr. Cunningham alone.

I am, Sirs, yours faithfully,

Southsea, July 21st, 1901. G. ARCHDALL REID.

STERTOR AND POSITION.

To the Editors of THE LANCET.

SIRS,—Permit me to relate an experience in confirmation of Dr. R. L. Bowles's views[1] with regard to the value of position in relation to stertor and threatened asphyxia.

A good many years ago, about 1883, Dr. Bowles published a short paper on this subject in (I think) the *British Medical Journal*. I was at the time in charge of the General Hospital, Singapore, and, shortly after I had read the paper referred to, a Chinaman (a police prisoner) hanged himself one day in the lock-up attached to the native ward. The apothecary, Mr. Wheatley, was soon on the spot, and he cut the man down (he was unconscious and nearly dead from suffocation), bled him, and succeeded in putting him apparently in a fair way to recover. That night I went out to dinner, and on my return, about 11 or 12 o'clock perhaps, I followed my invariable custom and before going to my quarters walked through the wards of the hospital. On visiting the lock-up, which was a space railed off from the end of the main ward, I found the Chinaman on the floor, resting only on his head and his heels, livid, unconscious, breathing stertorously, with his mouth and pharynx full to overflowing with frothy liquid. With Dr. Bowles's paper fresh in my mind I turned the man well over, on his side and kept him in that position. A quantity of fluid escaped from his mouth and nostrils, the stertor ceased, breathing became natural, consciousness gradually returned, and he recovered. I am confident that but for my accidental visit the man would have died very shortly. There was, I remember, a native policeman on duty who had looked on but had not thought it necessary or worth while to call for assistance.

This case, in which the patient was undoubtedly saved from imminent asphyxia from fluid in the air-passages, may be contrasted with the case of hanging noted in Dr. Bowles's second lecture, in which the result, the patient not having been turned on his side, was not so fortunate.

Since that time I have employed Dr. Bowles's method in many cases of stertorous breathing with success as regards the stertor, though as regards the actual saving of life I can recall no case so marked as that given above, for too often the causes of stertor are themselves the causes of death. If, however, the stertor can be stopped it is sufficient reason for the treatment, for at the least it helps to procure euthanasia, possibly for the patient, certainly as regards the feelings of the friends, who otherwise might have to hear the horrible sound for hours. With the exception of Dr. Bowles's former paper I have never seen anything written on the subject and have sometimes thought that the treatment is not very widely known, or at all events very widely practised; it is a good thing, therefore, that Dr. Bowles has again brought the matter to notice in his lectures which you have lately published.—I am, Sirs, yours faithfully,

MAX F. SIMON,
Late Principal Civil Medical Officer, Straits Settlements.
Welbeck-street, W., July 29th, 1901.

[1] Lectures on the Practical Points in the Treatment of Threatened Asphyxia, THE LANCET, June 22nd (p. 1743) and 29th (p. 1814) and July 6th (p. 1).

THE INHALATION OF FORMIC ALDEHYDE IN THE OPEN-AIR TREATMENT OF TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—In your issue of August 3rd, 1901, p. 310, your reporter in his report of the proceedings of the Tuberculosis Congress has inadvertently substituted Dr. R. Maguire's name for mine. It was I who read the paper on the Inhalation of Formic Aldehyde in the Open-air Treatment of Tuberculosis at the Congress. Will you kindly correct this error and oblige,

Yours truly,
CHOWRY MUTHU.

Inglewood Sanatorium, St. Lawrence, I.W.,
August 6th, 1901.

To the Editors of THE LANCET.

SIRS,—In your last issue a paper was attributed to me as having been read at the Tuberculosis Congress which was not mine. The mistake was the more unfortunate as the paper expressed views exactly opposite those expressed by me. My paper stated that inhalations could have no effect on the tubercle bacillus; and that I had demonstrated that the intravenous injection of methylic aldehyde by my method, even to the amount of 50 cubic centimetres, was entirely devoid of danger.

I am, Sirs, yours faithfully,

August 6th, 1901. ROBERT MAGUIRE.

OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—In your reference to my communication to the Medical Section of the British Congress on Tuberculosis published in THE LANCET of August 3rd, p. 307, there occurs a statement which appears misleading from my point of view and which I crave your indulgence to correct. I am reported to have said that the temperature of a sanatorium ward was "best kept not too high." This is likely to convey a view very different from that which is held by me and was elaborated in my remarks. I allow the freest access of fresh air to the patient day and night, at all seasons, taking care that he is sufficiently clad. I am not careful as to the temperature of the surrounding air, whether in or out of doors. Indeed, there seems a disadvantage in endeavouring to combine free exposure of the patient out of doors with his occupancy of rooms in which the temperature is maintained constant, or, still worse, which may become overheated. It is more logical, and experimentally more successful, to subject the patient indoors to approximately the same conditions as out of doors. It is wise to be sparing in respect of artificial heating.

It is an interesting commentary on this statement to add that the results during the past eight years have proved themselves in many respects more satisfactory in winter than in summer. Even with the most delicate patient I have on no single occasion observed a bad result follow the most complete exposure to such influence. Contrariwise, in proportion as the patient is more freely exposed the satisfactory result is attained more quickly. During the present spring, for example, I have allowed a considerable number of patients not only to be out all day, but to sleep outside all night, merely under cover of a three-foot-deep shelter completely open in front. Some of these patients literally ran ahead as compared with others sleeping in-doors.

I am, Sirs, yours faithfully,

Edinburgh, August 3rd, 1901. R. W. PHILIP.

"BRITISH MEDICAL MEN AND GERMAN WATERING-PLACES."

To the Editors of THE LANCET.

SIRS,—The correspondence recently published in your columns[1] raises a question of importance at this season when so many betake themselves to health resorts. It is one which cannot be settled without the due appreciation of certain incontestable facts. While we have in this country

[1] THE LANCET, July 20th (p. 171) and 27th (p. 228), 1901.

springs such as those of Buxton, Harrogate, Strathpeffer, Cheltenham, Leamington, Tunbridge, and Bath, which can hold their own, or should hold their own, with continental waters of like character, it must, I think, be admitted that, rich as Great Britain is in minerals, nature has not provided this country so lavishly with mineral waters of potent constitution and high and regulable temperature as she has some portions of the continent.

It is true that deficiencies of temperature and mineral constitution may be artificially supplemented, but for such baths, and merely as such, there is no necessity for going even to English watering-places. They may be had in one's own house, but without the necessary adjunct of that holiday sense of relief which can only be obtained *procul negotio*. This consideration of holiday entertainment is an important one. Our variable climate, and perhaps our national characteristics, seem not to have been so favourable to the cultivation of those powers of entertainment which the more steady climate of the continent and the less insular reserve of its inhabitants have fostered. These differences seem to have led to the establishment of a reputation for "curing" and at the same time "amusing" which accounts satisfactorily enough for our watering-places having been robbed of many English visitors. The physical differences cannot, of course, be removed except by artifice, and Dr. Thomas Dutton acknowledges that certain German springs are more potent in the relief of some diseases than their English equivalents. Much as has been done, moreover, to render English resorts attractive, still more will have to be done in some cases before the level of continental brightness and "go" is reached. Many who betake themselves to such places are in no sense invalids and merely need to be amused. Others are only slightly indisposed. It is this fact which would render it difficult to prove by statistics even the particular contention of Dr. W. Bezly Thorne. It is undoubtedly true, as Dr. Dutton maintains, that many cases of heart disease are better treated by recognised means in this country than by going abroad. Constant experience in our hospitals and among the poor proves this beyond dispute. It is also true that a very large number of persons who go abroad for cardiac treatment suffer from little else than general fatigue and return refreshed and invigorated after a quiet holiday combined with carefully administered baths and regulated exercise, and crowned by a short stay in a bracing climate. In this category I should place cases of slightly disturbed compensation in organic disease of the heart. But will anyone maintain that the waters of Abana and Pharpar—of Buxton, Harrogate, or Scarborough, and a dozen other places would not be equally efficacious in the majority of these cases? Were the statistics of all such cases placed against those of grave organic lesion with much disturbed compensation arithmetic would undoubtedly be with Dr. Thorne, but Dr. Dutton's contention would not be invalidated. It is more easy to detect cases not grave enough to be sent abroad than those grave enough to be *safely* sent abroad. But to send such patients from home may be the duty of the physician if a given spa on the continent be naturally superior to our own for a specific purpose.

I am, Sirs, yours faithfully,

ALEXANDER MORISON, M.D. Edin.

Upper Berkeley-street, W., August 5th, 1901.

"THE TIMES ARE TROUBLOUS."

To the Editors of THE LANCET.

SIRS,—As a general practitioner in London I should like to say a few words to indorse the opinions set forth in the letter of "G. P." under the above heading which I have just read in THE LANCET of July 27th, p. 229. The two evils of which he speaks—viz., the abuse of the out-patient department of hospitals and the prescribing chemist—are very real and very serious ones to us general practitioners. The loss resulting to the medical man from the former can be more especially appreciated by those who, like myself, reside in the near neighbourhood of a large general hospital, the out-patient rooms of which are every day filled to overflowing with patients, a very large proportion of whom would be well able to afford the moderate fees charged by the medical men in the district. If such a plan as that suggested by "G. P." of excluding all such patients from hospital charity as are not actually recommended by medical men were followed the chances of lessening the evil would be very greatly increased, and the number of undeserving cases admitted would be at once reduced to a minimum. With regard to the prescribing chemist, he is a very thorn in the flesh to the general practitioner. One need but wait for a few minutes in any chemist's shop at almost any time of the day to understand why, at a time when coughs, colds, and sore-throats are rife, the medical man has so comparatively few patients on his list afflicted with these maladies. Surely with a little effort something can be done to check this growing evil; if the practice of counter prescribing be illegal, as it undoubtedly is, there should be no great difficulty in putting a stop to it. For obvious reasons this cannot be done by individual action—it is a matter which should be combated by the profession as a whole, and what more natural than that we general practitioners should look for aid, as "G. P." suggests, to our representative body—our General Medical Council—and should call upon the members of this body to act for us and with us in making an earnest effort to stamp out a practice which is becoming more and more a source of loss to the already not overpaid members of an honourable profession. It is in the hope that this matter will be taken up seriously by the profession, and that the suggestion offered by "G. P." may bear much good fruit, that I am writing this letter in which my aim has been simply to uphold the views of that writer rather than to make any further suggestions of my own.

I am, Sirs, yours faithfully,

July 20th, 1901. M.B., CH.B.

To the Editors of THE LANCET.

SIRS,—That there is considerable abuse of hospitals in London there is no doubt. But then, are not the means of obtaining a knowledge of the financial position of the applicants for charity totally unbusinesslike and inadequate? I submit that in nine cases out of 10 the statement to the effect that "I can't afford to pay a doctor" is considered an adequate answer. I would like to ask if any other charitable institution or Poor-law authority grants its benefits under similar circumstances. The answer is no, and why should medical charities be so foolishly weak, encourage deception, and tend to ruin THE MEDICAL BROTHERHOOD?

August 5th, 1901.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Plague Epidemic.—Mr. Haffkine on the After-effects of Inoculation.—Chaulmoogra Seeds.—Strike of Medical Students in Bombay.—Changes in the Indian Subordinate Medical Department.—The Infection of Malaria.—The Famine.—Kala-azar in Assam.—Emigration from India.

A FURTHER rise has taken place in the plague mortality throughout India. For the week ending July 13th there were 1258 deaths, as compared with 1125 for the previous seven days and 200 for the corresponding week last year. The increase is almost entirely in the Bombay Presidency where 1048 deaths were reported. Bombay city had 85 deaths and Calcutta 16. Karachi has been declared no longer infected with plague. There were only two deaths in Bengal, three in the Madras Presidency, and six in the North-West Provinces, but 97 deaths were returned from the Mysore State. An outbreak has occurred in Tongkah in Siamese territory and it has therefore been declared an infected port.

A lecture was recently given at Poona by Mr. Haffkine on the After-effects of Inoculation. Rumours have been spread abroad from time to time by ignorant and malicious persons that inoculation for plague produced other diseases. Mr. Haffkine very clearly proved the baselessness of these rumours. He seems to try to show, however, more than this—viz., that there is a comparative freedom from sickness and disease amongst the inoculated for some time after the operation. The statistics given by Mr. Haffkine certainly seem to show a lessened mortality from general diseases amongst the inoculated which is difficult of explanation. At any rate, the examination of whole groups of inoculated and

uninoculated persons living together and belonging to the same races, castes, social position, and families, has clearly shown that the inoculated have not suffered from the operation. It is not generally known that serum from cases of human plague has been tried as a curative agent, but from the notes shown to me there was apparently no benefit obtained. The doses were small—three cubic centimetres and five cubic centimetres once a day and not always that—so this may possibly be the explanation.

It may interest your pharmaceutical readers to know that the source of the seeds known as "chaulmoogra," which are largely used in native medicine as well as in Europe and which have usually been attributed to the species known as gynocardia odorata, is the species known as taraktogenos kurzii and not the tree known as chaulmoogra. This decision has been arrived at by Dr. Watt, the Reporter on Economic Products.

A curious strike of medical students on a large scale is going on in Bombay. The army students and the lady students are taking no part in it. Some offensive writing on the walls was brought home to certain students who were singled out for punishment but who seem to have obtained the sympathy of a large number of the college students. The principal appears to have adopted the punishment of refusing to sign certificates as to moral character, which loses for the culprits the period of a year's study. The strike followed.

Further changes in the organisation and prospects of military assistant surgeons in the Indian Subordinate Medical Department have been made in order to provide an adequate reserve for war or other emergency. These officers will be required for military appointments, for duty with store depôts, marine and telegraph departments, for provincial and railway appointments, and for the formation of a reserve of 15 per cent. of the total for temporary duties and to fill leave vacancies. The pay has been increased and the prospects have improved all round.

A very instructive incident occurred at the Kallang extension works in connexion with an outbreak of malaria. The Javanese workmen had been free from fever until the arrival of a number of Punjabis. These Punjabis were many of them suffering from anæmia and had enlarged spleens. Some Chinese who were also employed turning up the soil escaped. The quarters of the Javanese and Punjabis were adjacent to each other and specimens of anopheles mosquitoes collected from their buildings show them to contain the malarial parasite. It appears, therefore, that the disease was introduced by the Punjabis and conveyed to the Javanese coolies by the mosquitoes. The mere turning up of the soil did not seem to affect the Chinese and they were quartered further off. The disease has apparently been checked by the employment of mosquito curtains, the distribution of quinine, and extensive lime-washing. A correspondent of the *Madras Mail* shows that the value of the castor-oil plant against the trouble of mosquitoes lies in its attractiveness for mosquitoes which seem to obtain some nourishment from it. If placed, therefore, some distance off not even the light of a lamp will attract them away from it. To have a castor-oil plant near a sleeper is simply to attract the insect towards him.

The famine returns still show over half a million persons under relief. The monsoon prospects continue to be unfavourable and the rainfall in the areas which want it most has been up to the present very scanty. There has been no rain in Baluchistan, only 26 per cent. in Gujerat, 30 per cent. in Central India, and only 33 per cent. in Upper India.

The peculiar fever of Assam known as kala-azar appears to be dying out. The deaths have fallen from 18,597 in 1897 to 9012 last year, but the annual report on the dispensaries in Assam shows an extraordinary increase of skin diseases.

There is a steady emigration of Indian coolies to the various colonies every year. Demerara takes most, but Natal and Fiji as well as Mauritius and Trinidad import them. The total number recruited last year was 18,489. They chiefly go from the North-West Provinces and Oudh. Those returning from Demerara brought back savings on an average of Rs. 139·8 per head; those from Trinidad had an average saving of Rs. 214 per head. The immigrants into Natal seem, however, to be the best off and to make the largest remittances. The Government of India takes a very fatherly care of all these people and looks well after them.

July 20th.

THE ORGANISATION OF THE PROFESSION.

(FROM OUR SPECIAL COMMISSIONER.)

Adoption of a New and Democratic Constitution by the British Medical Association.

IT has often been said that medical men are not good business men and certainly the meeting of the British Medical Association at Cheltenham does not belie this impression. On this occasion there were business matters of the utmost importance to be discussed and settled, but garden parties proved far more attractive. A complete revolution has been accomplished by a mere handful of members, while the immense majority of the members of the British Medical Association who went to Cheltenham were content to leave all business matters to take their chance. It is doubtful whether any other corporation, professional, scientific, commercial, or trade association would have manifested so much apathy when such important issues were at stake. If the new constitution which has been adopted is worth the paper on which it is written such indifference will never again be witnessed at the annual meetings of the British Medical Association. In future these annual meetings will be attended, not merely by members on picnic thoughts intent, but by duly elected and paid representatives bearing imperative mandates instructing them how to vote. It is to be presumed, therefore, that henceforth the business of the Association will be attended to by representatives imbued with the sense of a duty to perform and really qualified to speak on behalf of a large proportion of the practitioners of this country. The paucity of members present to discuss what was qualified on the agenda as the report of the Constitution Committee, but what in reality promised a complete revolution of the Association, may be explained by the fact that old habits continued under the new order of things. The members evidently utterly failed to realise that there was a new order of things. Formerly the Council of the Association did not believe that they were legally bound to carry out the instructions voted at the annual meetings. As was officially explained, the Council had always striven to act according to what they conceived to be the desires of the majority of the Association. But on many occasions they did not consider that the majority vote of a general assembly at the annual meetings represented the majority of the Association, and therefore they did not carry out the instructions given. Consequently the utility of adopting resolutions at such general assemblies was more than doubtful; and, presumably, the members grew weary of recording mere pious wishes. Under such circumstances it is not surprising if the rival attractions of garden parties proved a powerful allurement. There was, however, no such excuse at Cheltenham. This time it was fully understood and broadly stated that the Council of the Association have all this while been labouring under a misapprehension, and that however poorly the general assemblies at the annual meetings may be attended these assemblies are sovereign, and the Council is legally bound to carry out their decisions. That the Council for so many years should have been mistaken as to its legal position and responsibilities constitutes yet further evidence of that lack of business capacity which is widely acknowledged and deplored. Have a few strokes of the pen, a number of votes hastily recorded by a few persons, altered all this?

Undoubtedly it is somewhat difficult to believe in the possibility of such a sudden transformation scene. It is all a question of ripeness. Has the day really come for the harvest? Mr. Edmund Owen, who reported for the committee appointed to draw up the new constitution, described the ripening of his own mind. He made a most able, humorous, and sarcastic speech. He related that his opinions were not known when he was put on the committee; in fact, he did not know them himself; he did not even know that there was a question on which he ought to have an opinion. There is every reason to fear that Mr. Owen was not alone in this state of ignorance; but that even to-day, and in spite of the Cheltenham meeting, this is precisely the position of perhaps the majority of medical men throughout the country, whether they belong to the British Medical Association or not. Now, however, that

the constitution proposed by the committee—of which Mr. Owen was chairman—has been adopted a good deal more light will be thrown on the subject. To begin with, the unattached member is to be abolished and henceforth every member must join a local branch of the association. Then he must pay 25*s.* instead of a guinea annually. Such a change cannot be effected in silence. Every member who still ignores what has occurred will ask why these alterations have been effected. Some of the members who were formerly unattached to any branch may now that they are forced to join a branch be induced to attend some of its meetings. Then the branches will have to elect representatives, and all this will lead to discussions and explanations and to much enlightenment. Will this increase of activity and responsibility augment the membership of the Association or will it frighten any considerable number of members away? It is difficult to find anyone who is bold enough to prophesy. In any case, the complaints have been loud and long that the British Medical Association did not do anything in regard to the political and economical concerns of the profession. There is the battle of the clubs. The British Medical Association is strong enough and sufficiently numerous to settle that grievance if all its members were disciplined and if they acted in common accord. As yet nothing practical has been done by the Association. Where the battle has been fought it has been fought by small local bodies acting independently of the Association as a whole. The object of the new constitution is to convert the Association into a fighting body and to make it take the lead in such matters. There are a few medical unions in this country; their history and militant action have been described at great length in these columns. But these 30 or 40 medical unions or guilds represent only a very small minority of the medical profession. It was said that the conference on the organisation of the profession held at Manchester last year represented some 4000 practitioners, but these practitioners were not all in union, at least not in the stricter sense of the word. It is, indeed, because they were so weak, as compared to the great bulk of the members of the profession who remained apathetic, that the idea of capturing the British Medical Association arose, and so far as the voting and carrying of resolutions goes this idea has now been fully realised.

What, however, will be the upshot of these votes? Can the life, habits, mode of action—or rather of inaction—of 16,000 or more practitioners be altered by the votes of less than a hundred among them? If they are really ripe for such a sweeping change then this most audacious attempt may very well prove successful. On the other hand, the fact that five out of six, or perhaps six out of seven, of the medical men who were enrolled as members of the Cheltenham meeting did not take the trouble to participate in the votes or discussion which were to decide their fate does not indicate that their opinions had been ripening. Perhaps, however, those practitioners who feel where the shoe pinches and therefore could not afford to be at Cheltenham, have a far keener appreciation of the importance of the points at issue. It is these absentees who will govern the future meetings. The voice of the poorest practitioner will be as powerful as that of the most wealthy and successful in the election of the future representatives. The Council will no longer be the governing body; its functions are now reduced to that of an executive appointed to carry out the instructions of a representative parliament. This revolution was graphically described by comparing the British Medical Association to a pyramid which stood on its point. The few governed the many. Now the whole thing is reversed and the pyramid is to stand on its broad base and the many are to govern. There is to be proportionate representation. As a rule, and for the more rapid transaction of business, the vote will be by show of hands; but, when desirable, the vote will be taken by card, and "every representative shall record as many votes as there are members in the division or group of divisions which he represents." Then when any constituency has passed a vote on a subject the representative of that constituency must vote in accordance with such resolution whatever his own personal opinion may be. This is delegateship and what is termed on the continent an imperative mandate. An amendment was moved to the effect that it was better to call a spade a spade and that therefore the word "representative" should be struck out and the word "delegate" used in its stead. This proposal, however, was outvoted. But if the word "representative" is retained this is done as a matter of tactics rather than of principle. A representative is supposed to act according to his own discretion; a delegate must obey the orders of his electors, and the whole wording of the clause clearly indicates that it is delegates and not representatives that are to be elected. Here, again, the question arises whether this discreet veiling of the meaning of the clause is not an indication of the fear that the Association is not ripe for the great democratic revolution that has been accomplished.

On the first day of the discussion on the new constitution there was but a small attendance, composed mainly of the friends of the proposal. Consequently there was very little opposition, comparatively little discussion, and but few amendments. The movers of the amendments were promptly out-voted and in a sitting that lasted only from 2.30 to 5 P.M. 15 clauses with several sub-clauses were adopted. There was certainly some grumbling. It was said that the whole thing was being rushed through, the real fact being that as there was hardly any opposition or even friendly criticism it was easy to progress rapidly. Then it was rumoured that the alarm would be sounded and that the next day the members would come in force to see that their fate should not be decided in such helter-skelter haste and without more careful examination, criticism, and debate. The proceedings on the following day commenced with an address by Sir William Thomson, C.B., on surgery, with special reference to the South African war and the Princess Hall was certainly well filled. It did seem as if this time at least the latter half of the new constitution would be discussed by a more imposing number of members. But no sooner had Sir William Thomson finished his address than a good half of the members present rose and left. Of those who remained the greater part dwindled away one by one. Towards the end of the sitting Mr. H. Nelson Hardy proposed that a recommendation should be made in favour of appointing a committee to advise the editor of the *British Medical Journal*. This met with considerable opposition and it was necessary to count the votes. There were 22 votes for and 20 against. These figures give some idea of the paucity of the attendance. Subsequently there were barely 30 members in the body of the hall and still the clauses of the new constitution were being carried one by one, and this so rapidly that the greater part were not even read out, but their number and heading alone were given. As there were 36 such headings remaining to be voted upon in the course of one single afternoon it was certainly necessary to proceed rapidly. Indeed, the lengthiness of this constitution seems to have frightened a good many members away. To grasp the meaning and bearings of so many rules, details, sections, and subsections was a formidable undertaking, and the weather was very hot.

If it were possible to look upon this project of a constitution in the light of a Bill before Parliament a speaker very justly observed that it would require three or four sessions of the House of Commons to pass such a constitutional enactment. Yet here the whole thing was done in two sittings or about, in all, four and a half hours. Certainly the committee which had prepared the scheme had worked admirably, and had held nine sittings which were well attended. It also evolved within its own ranks a real statesman, Mr. J. S. Whitaker of Yarmouth. At Cheltenham Mr. Whitaker acted as a Prime Minister steering a Government Bill through Parliament. He was ever ready with a concise, lucid explanation which swept away misunderstandings and doubts. His master grasp of the whole subject commanded unbroken and patient hearing. In manner modest, he was yet as firm as a rock, and he courteously but fearlessly criticised men who were much his seniors and have been at the head of the profession for years. If any one can make the new constitution a living reality it is Mr. Whitaker, but there is a weakness even here. Mr. Whitaker's experience is that of Yarmouth, where the profession is admirably organised and unanimous. Such favourable surroundings may make him a little over-confident as to the possibilities elsewhere. The apathy shown at Cheltenham is not encouraging.

Not only had this most important new constitution to be discussed and decided, but, what was quite as important as the adoption of the constitution, this was to be followed by the bringing forward of certain motions which would be a commencement in the practical application of the new order of things. One motion condemned the Midwives' Registration Bill and the other was to impose on all members of the British Medical Association a pledge which would debar

them from accepting any post resigned by a fellow member with the approval of his branch. This, of course, is the first principal of unionism. In vulgar parlance it abolishes undercutting. It is the first step that can be taken in fighting the battle of the clubs, but the members of the British Medical Association seemed so little concerned about the battle of the clubs that there was hardly anyone remaining in the hall when the matter came up for discussion. Indeed, both motions had to be abandoned because it was rightly felt that it would be ridiculous for such far-reaching principles to be sanctioned by only from 30 to 40 members. This dismal conclusion of what should have been a great and historical sitting is certainly most disconcerting. A new constitution is voted involving very radical changes. Then follow one or two test motions which were to show that the [new constitution would be applied in the 'spirit and direction i ntended by its principal promoters. This was most critical and more important in a way than the constitution itself, for after all paper constitutions are of but little significance; the whole question rests in their application. It can be understood that some members should have shrunk from the irksomeness of discussing the lengthy and minute details of the new rules, but when it came to the practical question of their application then it was natural to expect that the members would come up in great force. Instead of doing so they allowed the meeting to collapse, and in the face of an empty hall the motions which from their practical bearing were the most important of all had to be abandoned. If at these annual meetings anything is to be done affecting the economical interests of the profession it is indeed time that the meetings should be differently constituted. There must be something better than garden-party government, and if anything can secure that end the new system of representation by delegates and proportional voting should do it. The future now depends on the constituencies themselves.

THE WAR IN SOUTH AFRICA.

(BY A SPECIAL CORRESPONDENT.)

THE signs of a conclusion of this lingering campaign are slowly but surely becoming more evident. The Boers seem to confine their offensive tactics to the wrecking of a train here and there as circumstances permit, and for the rest they watch our camps and columns from a safe distance and attempt to evade any force sent against them, only fighting when escape is otherwise impossible. The winter is a severe one and the cold nights have a telling effect upon the endurance of even the hardy Boer. Within the last week four prisoners were captured at Brandfort with one boot between them, and at the same place it is rumoured that 40 men surrendered because their clothing was not sufficient to protect them from the rigour of the South African winter.

At Cape Town the number of plague cases is diminishing and there seems every prospect that the disease will shortly be stamped out by the energetic means adopted by the medical officers in charge. But whilst the plague is disappearing another annoyance is increasing in severity. Cape Town is rapidly becoming the happy hunting ground for thieves and loafers of all descriptions. All the principal hotels find it necessary to warn their visitors to keep the doors of their rooms locked, and even then thefts occur, a wrist watch in one instance being stolen whilst the owner was absent for 10 minutes in his bath.

The discomforts and dangers of travelling on the railway are very numerous. One never knows whether or not there is a dynamite bomb laid under the rails, and in some instances, as at the mishap to the Gordons on the Petrusberg line, the Boers hide themselves within easy range of the site of the accident and shoot the men down as they emerge from the wrecked carriages. In some instances, owing to the destruction of the line in front, the trains are delayed at some insignificant siding where neither food nor drink can be obtained, and the unwary traveller who has not provided himself with a hamper of good things may have to go to bed supperless. Travelling by night in some districts has to be stopped, and the journey from Cape Town to Pretoria takes on an average four or five days instead of 48 hours, which is the usual time taken in times of peace. I recently took eight days to accomplish the journey.

The work of devastating the country, disagreeable as it is to all engaged upon it, is proceeding with certainty. Thousands of sheep, cattle, and horses can be seen collected on either side of the line in immense herds of hundreds of thousands; in some cases one passes by an immense herd nearly half a mile in length, slowly and wearily marching to some centre, such as Bloemfontein or Pretoria, with scarcely a blade of grass and very little water to cheer them on their way. Hundreds of sheep and lambs die on the way from want and exposure. At this time the veldt is almost denuded of any fresh verdure and all that the cattle can find to eat is the grass which has been roasted by the previous summer's sun into a kind of dried hay. Veldt fires are ignited to render the country unfit for the Boers to live in, and large tracts of country have been, and are being, laid waste by this means. It seems to be a common custom in this country to fire the grass early in the winter, to give the veldt a chance of coming up fresh and green after the next rainy season, but the fires now are of much larger dimensions than is usual.

The hospitals are everywhere fairly full, but in all there are a certain number of empty beds. The outbreak of enteric fever this year has not been of such proportions as it assumed in the autumn months of 1900. Perhaps this may be partly explained by the fact that a certain proportion of the men in the field have been protected by a previous slight attack from a second infection, and from the fact that there is not the same need for haste and of taking long marches on short rations.

The Imperial Yeomanry Hospital at Pretoria is in a flourishing condition. Small convoys of sick and wounded arrive daily. Owing to stress of work in Pretoria Dr. Richmond has been requested to take up duties at the Imperial Yeomanry Hospital there instead of proceeding to Elandsfontein where a small branch hospital of about 50 beds has been equipped and opened. At present it is intended to keep this branch hospital more as a convalescent camp and for cases of slight ailments, the more serious cases being sent at once to Pretoria.

The chief diseases in evidence are rheumatism, malaria, influenza, and tonsillitis, with cases of heart disease and minor ailments. Enteric fever and dysentery crop up every now and then, but the number of fresh cases is certainly decreasing. The new Yeomanry are not such fine men as their namesakes were either in physique or in general bearing. There seems to be a desire amongst some of them to gravitate to hospitals as the safest and pleasantest places of resort. Such cases of malingering would at once be met by an order which should compel a man to lose his pay of 5*s.* a day whilst in hospital unless he was specially recommended by his medical officer as a deserving case. It is one of the most difficult things in the world to be sure that a man is malingering, and in any case it takes several days of careful watching to make quite sure.

Owing to the absence of any heavy engagements the amount of surgery to be done is not large and it depends chiefly upon accidental injuries, sniping, railway accidents, and minor surgery such as abscesses and piles. Hernia and varicose veins are fairly numerous, but owing to the time which must elapse after operation before the patient can resume any active duties it becomes a question as to whether it is advisable in many cases to perform radical cure.

Deelfontein, July 10th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Hospital Sunday and Saturday Fund.

A MEETING of the General Committee of the Manchester and Salford Hospital Sunday and Saturday Fund was held on July 24th. The Sunday collections amounted to £4180 16*s.* 10*d.*, those on the Saturday (to date) to £3829 12*s.* 11*d.*, and a balance of over £200 from last year, together with bank interest, brought the total to £8270 16*s.* 4*d.*, which the expenses, £556 2*s.* 5*d.*, reduced to £7714 13*s.* 11*d.* It was estimated that about £180 would still be obtained from later Saturday collections, and the committee decided to distribute £7600 amongst the medical charities, which is an increase of £1000 over last year's distribution. Manchester, unfortunately, does not approach Liverpool in regard to this special manifestation of charity.

The Heat and the Drought.

Like most other places in the country Manchester has had its share of hot and dry weather. Perhaps the shade temperature, 88·2°F., recorded on July 20th may prove the highest of the season. The mean temperature of the third week in July was 7° higher than the average of the mean for the corresponding week for the previous 10 years. The mortality rose from 16·9, the average for the previous six weeks, to 20·1. The long-continued drought came to an end on July 25th. It was beginning to be felt seriously and Manchester was put on a shortened allowance of water, notwithstanding the supply from Thirlmere, without which, indeed, it would have been in a much worse case. On one occasion 320,000,000 gallons were added to the reservoirs of Longdendale. The rainfall on that day, as observed at St. Bede's College, for the 24 hours from 9 A.M. on the Thursday to 9 A.M. on Friday, was 2·62 inches, the highest, it is believed, ever recorded for Manchester, and higher than the total for any single preceding month of this year, March and April approaching it most nearly. Curiously enough the rainfall at Longdendale among the hills was half an inch less than at Manchester, quite reversing the usual order of things.

The Milk-supply.

The drought has told heavily on the milk-supply, greatly increasing the cost of production, and a meeting of the Cheshire Milk Producers' Association was held at Crewe to consider the question of price and also that of the new milk standard which came into operation at the end of the month. This directly affects Manchester which is very largely supplied from Cheshire and Derbyshire. It was said that present prices did not pay the cost of production, and a resolution was passed appointing a committee from the meeting to meet the milk-dealers of Liverpool, Manchester, Birkenhead, and other towns, and to try to get better prices. Any rise in the price of milk is always to be regretted in the interests especially of the young, but farmers can scarcely be expected to supply it at a loss. As regards the new milk standard a resolution was passed objecting to samples being taken for analysis "after the milk has left the farmers' control" and urging that they should "be taken at the loading station," which seems to be a reasonable request.

Medical Relief and Civil Rights.

At the last meeting of the Manchester Board of Guardians a resolution was passed "in favour of asking the Local Government Board to urge on the Government the desirability of amending the law which prevents persons who are, or who have been, in receipt of medical relief in workhouse infirmaries from voting in Parliamentary or municipal elections." It will be sent to other boards of guardians with a view to concerted action. A letter was received from the president of the Poor-law Officers' Association calling attention and objecting to the condition required by many of the boards of guardians that married couples required as officers shall be without children, *alias* "encumbrances." The board agreed not to use the words in advertising for married officers. The presence of children would no doubt lessen the temptation to drinking among the couples who are now perforce childless.

July 30th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Housing Problem in Liverpool.

FOR some time past the Housing Committee of the Liverpool Corporation have had under consideration a large scheme for re-housing persons who will be dispossessed by the demolition of about 8184 insanitary houses. The committee have issued their report, in which they state that the number of insanitary houses is now 7500, consisting of 750 houses erected since 1842 and contained in, or abutting on, courts; and 6750 back-to-back houses, erected prior to 1842, having no through ventilation and contained in courts with narrow entrances. Of this number about 15 per cent. are derelict or in respect of which a closing order might be obtained as unfit for human habitation; and this deduction left the number to be dealt with as about 6400. The cost of demolishing these houses might be estimated at £279,000, which sum included the cost of acquiring the sites. With regard to the re-housing adequately of the persons who will be dispossessed it appeared to the committee that they ought, as the work of demolition proceeded, to provide for all those of the dispossessed who would require re-housing by the corporation. The committee estimated that this would involve the erection of 4800 houses, and that it would not be safe to assume as the cost of erecting these a less sum than £720,000. In the letting of these houses the committee proposed to continue the policy which they had already adopted—viz., to accept as tenants those who have been or were to be dispossessed. The committee had already built, or were about to build, 903 houses in 12 streets. They would thereby be in a position of having houses always ready for dispossessed tenants until the work of demolition was completed. With regard to the cost to the ratepayers of the work yet to be done by the committee, assuming that a period of 60 years only was obtained within which to repay the amount borrowed for the purpose, and assuming that the cost of demolition would be £529,000 and that the estimated cost of re-building would be £720,000, the annual charge would be £64,531. From this sum must be deducted £25,000 in respect of the net rents to be received, leaving an annual charge on the rates of £39,531.

The "Celtic" and the Liverpool Hospitals.

The leviathan White Star liner *Celtic* was open for public inspection on July 24th for the benefit of the hospitals, 5,162 persons visiting the ship. The receipts amounted to £258 2*s*., the whole of which will be divided amongst the David Lewis Northern Hospital, the Stanley Hospital, and the Bootle borough hospitals in equal proportions. These institutions are mostly used by employés of the White Star Company.

August 6th.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Newport and Monmouthshire Hospital.

THE Newport and Monmouthshire Hospital, which was formally opened by Lord Tredegar on August 5th, is a three-storey brick building with Bath stone facings, and is situated in the town of Newport within grounds about five acres in extent presented to the trustees of the hospital by Lord Tredegar. The out-patient block is placed close to the entrance to the grounds and is quite distinct from the main buildings which stand back from the Cardiff-road nearly 100 ft. There is a total accommodation for 84 patients in six 12-bed and 6 two-bed wards; 14 beds will be used for male medical cases, 14 for female medical cases, and 14 will be allotted to children; 28 beds will be available for male surgical cases and 14 for female surgical cases. The central block of the hospital is devoted to administrative purposes and on either side are the male and female ward blocks connected with each other and with the administrative block by corridors. On the ground floor of the central building are the house-surgeon's bedroom, bathroom, and sitting-room, the matron's sitting-room and office, the board-room, porters' rooms, and a bathroom. On the first floor are 14 nurses' bedrooms, each 14 feet by nine feet, a nurses' sitting-room and dining-room, a bathroom, and the matron's bedroom, leading out of which is a separate bathroom. On the second floor are the kitchen, the scullery, and the pantries, nine servants' bedrooms, and a servants' hall. The arrangement of each of the ward floors is similar; one description will therefore suffice for the six. There is on each floor one large ward, 11½ feet in height, 50 feet long, and 26 feet wide, intended for the accommodation of 12 patients with an air-space of 1245 cubic feet for each. Eleven of the 12 beds have a window on each side. The walls are covered with Parian cement and painted, and all corners are rounded. Between the beds there are plug connexions fitted in the wall to enable a portable electric light to be used for special examinations. The heating of the large ward is by means of a double-fronted central stove with descending smoke flue and a fresh-air flue, and by hot-water radiators. The sanitary offices are in a corner annexe approached by a cross-ventilated passage. The slop sink of Messrs. Dent and Hellyer is of the fountain pattern for which is supplied a separate cistern—a precaution not always observed where this type of closet is fixed. The nurses' duty room adjoins the large ward and has an observation window in the dividing wall. There are also a patients'

bathroom fitted with a porcelain bath, store cupboards, nurses' water-closet and lavatory, a two-bed isolation ward, and a convalescent room made particularly attractive by the addition of a corner bay window from which on the upper floors an extensive view across the Bristol Channel can be obtained. The operating theatre is on the ground floor close to the patients' entrance; it has a north-west aspect and is lighted by windows and a top lantern light. The walls are of Parian cement painted white and the angles are rounded. There is an anteroom for the giving of anæsthetics. The floor is of terrazzo sloped towards an opening at the floor level. One of the glazed porcelain sinks has treadle action water-fittings. Hot-water radiators are fixed in front of fresh-air inlets at the floor level. The whole building and the grounds are lighted with electric light from the corporation mains, but gas is also laid on to all the rooms. A hydraulic lift is provided of sufficient capacity to enable a patient on a stretcher and an attendant to be taken from one floor to another, and a double household lift is fixed in the administrative building. There is telephonic communication between all departments of the institution. In each bathroom there is an electric bell-push, and upon being pressed a bell rings continuously until some person pulls a cord hanging immediately outside the bathroom door. This is an addition to the mechanism of electric bells which might well be placed in every public institution. The laundry, mortuary, and post-mortem room are in a one-storey building at the rear of the administrative block. The general arrangement of the hospital is admirably adapted for economical working and a great deal of care appears to have been bestowed upon matters of detail the first cost of which has no doubt been great, but it will be found in the end that the expenditure has been fully justified.

Sanitary Inspectors' Association.

The annual meeting of the Western branch of this Association was held on July 27th at Plymouth, Mr. F. M. Williams, medical officer of health, presiding. Mr. Victor Prigg read an interesting paper on the main drainage scheme now being carried out by the Corporation of Plymouth. Mr. F. M. Williams, in replying to a vote of thanks for presiding, remarked that sanitary inspectors should be granted superannuation allowances in the same manner as Poor-law officers. Mr. C. Seale-Hayne, M.P., was re-elected president.

August 5th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

University of Glasgow.

THE July graduation was, as is usually the case, mainly concerned with the "capping" of graduates from the medical faculty. The honorary degree of LL.D. was conferred on Dr. James Dunsmure, President of the Royal College of Surgeons of Edinburgh and on Mr. W. Mitchell Ramsay, M.A., D.C.L., Professor of Humanity in the University of Aberdeen. Nine gentlemen received the M.D. degree, and there were five successful candidates for the titles M.B. and C.M. The present day degrees of M.B. and Ch.B. were conferred on 71 gentlemen and six ladies. Mr. Alexander Dery Thompson and Mr. W. Macalister Brown graduated with "Honours," the former gaining the Brunton memorial prize as the most distinguished graduate of the year; and nine of the graduates were awarded "commendation." After the degrees had been conferred and the class prizes and distinctions announced an address was delivered by Sir Hector C. Cameron, Professor of Clinical Surgery. The Senate have appointed Professor Ferguson, Professor Bower, and Professor R. M. Wenley to represent the University at the celebration of the bi-centenary of the Yale University, U.S.A., to be held in October next.

The late Mr. John Ure, LL.D.

The announcement of the death of Mr. John Ure intimates the removal from the civic life of Glasgow of one who in his day and generation rendered yeoman service to the cause of sanitary improvement in his native city. His first entrance on public life dates as far back as the year 1856, when he became a member of the town council, and from that date until quite recently he has been more or less concerned with public affairs. The record of the offices to which he was elected by the votes of his fellow-townsmen would itself be a lengthy list, and the secure position which his ability, honesty of purpose, courtesy, and sense of duty had gained for him in the public confidence and esteem cannot be defined here. It is as a sanitary reformer and administrator that the memory of Mr. Ure claims the sympathetic regard of the medical profession. It was early in the "fifties," after the third invasion of cholera, that he began to display a strong interest in public health questions, and the recognition of this led to his appointment as chairman of a committee on nuisances constituted by the town council in 1857. It was one of his early acts to secure the appointment of Dr. (now Sir William) Gairdner as the first medical officer of health, and it was the combined action of the chairman and the medical officer which swept away the old insanitary tenements and laid the foundation of the present elaborate public health organisation. The cleansing department was put into working order, foul fever dens were demolished, inquiries regarding drainage were instituted, and last, but not least, a public opinion was created and organised. Mr. Ure continued for many years to be the active champion of sanitary progress and was an important force in securing the passing of the City Improvement Act, under the operation of which substantial workmen's dwellings now occupy the sites previously occupied by foul "lands" and "closes" opposed alike to health and morals. In recognition of his services to sanitation Mr. Ure was in 1879 elected a Fellow of the Sanitary Institute of Great Britain, the University conferred on him the honorary degree of LL.D., and at the expiry of his term of office as Lord Provost of the City he was offered the honour of knighthood which, however, he respectfully declined. In his death there closes a long, generous, and honourable career of service rendered for the public good.

University of St. Andrews.

At the July meeting of the University Court the plans, specifications, and estimates for the erection of the new conjoint medical school at Dundee were approved and the committee in charge of this matter were authorised to proceed with the building. It was agreed that the installation of the Right Hon. Lord Balfour of Burleigh as Chancellor of the University should take place in October. Dr. James Musgrove, the lecturer in Anatomy in the University, was elected as first occupant of the Bute chair of anatomy. The following appointments to lectureships were made: Dr. A. M'Gillivray, on Ophthalmology; Dr. J. Rorie, on Mental Diseases; Dr. J. M. Whyte, on Clinical Medicine; Dr. James Greig, on Clinical Surgery; Dr. G. Taylor Guild, on Diseases of the Throat, Nose, and Ear; and Dr. R. C. Buist, on Clinical Midwifery and Gynæcology. The elections to examinerships included Dr. A. Macphail (Glasgow), in Anatomy; Dr. R. B. Ness (Glasgow), in Materia Medica; Dr. D. A. Welsh (Edinburgh), in Pathology; Dr. W. J. Brock (Edinburgh), in Forensic Medicine and Public Health; Dr. R. Kennedy (Glasgow), in Surgery; Dr. W. Russell (Edinburgh), in Medicine; and Dr. W. Fordyce (Edinburgh), in Midwifery. It is announced that Professor W. S. McCormich of University College, Dundee, has been elected secretary to the Carnegie Trust.

Glasgow Royal Infirmary.

Dr. T. K. Monro, one of the physicians to the infirmary, has been elected Professor of Medicine in St. Mungo's College. Dr. G. Ritchie Thomson, who has for some months been on service in South Africa, has resigned his position as assistant surgeon, and Dr. John Patrick has been elected as his successor.

Morningfield Hospital, Aberdeen.

At the last meeting of the acting committee of the Morningfield Hospital for Incurables, Aberdeen, it was reported that there being 80 patients in the institution there was at present no room for any more. It was agreed to carry out, according to a plan by Mr. W. Kelly, architect, of Aberdeen, certain alterations and additions to the buildings, including a new dining-hall for the patients, the enlargement of the washhouse, laundry, kitchen, scullery, and pantry accommodation, the erection of a private room for the medical officers, and additional bathroom and lavatory accommodation.

August 6th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Army Medical Service Committee.

A LETTER from Sir Thornley Stoker appeared in the *Times* of July 16th calling attention to the absence of Irish representation from the committee appointed to consider the state of the Army Medical Department. On July 18th in the House of Commons Mr. Balfour stated, in reply to Mr. Healy, that Sir William Thomson, C.B., of Dublin, had been asked to join the committee representing Irish schools of medicine. Sir Thornley Stoker has again addressed a letter to the *Times* on the subject, in which he complains that the representation is even now insufficient when it is remembered that in 1893 nearly half of the medical officers of the naval and military services of the Crown held Irish diplomas. The fact that the number has fallen now to 37 per cent., as stated by Mr. Brodrick, shows that young medical men from the Irish schools are more than dissatisfied with the prospects afforded by the service at present.

The British Pharmaceutical Conference.

The opening meeting of the British Pharmaceutical Conference was held in the lecture theatre of the Royal Dublin Society at Trinster House on July 30th, Mr. Druce, M.A., President of the Conference, being in the chair. The inaugural address was delivered by the chairman and it dealt with the present position of the science of pharmacy. The members were afterwards entertained at luncheon in the Mansion House. On the previous evening a reception was held at the Science and Art Museum, Kildare-street, at which the President was present with some 200 guests. The Conference terminated on August 2nd.

The Epidemic of Typhoid Fever in Belfast.

At a meeting of the City Corporation of Belfast held on August 1st an animated discussion took place on the deplorable state of affairs which was consequent upon the continued and increasing prevalence of typhoid fever in the city. During the period between June 16th and July 20th out of a total of 765 cases of zymotic diseases which were notified 505 were those of typhoid fever, the others being 168 of simple autumn fever, 30 of erysipelas, 29 of scarlet fever, 21 of diphtheria, 11 of croup, and one of typhus fever. The worst feature of the present outbreak of typhoid fever is that now it is prevalent in all the districts of Belfast, in the north, east, and west parts of the city and on both sides of the river. There were 167 deaths from zymotic diseases. Again, at the present time a serious outbreak of measles is present in Belfast of an unusually fatal type, having caused 55 deaths, and to crown all there were 133 deaths from phthisis and 104 from diseases of the respiratory organs. Further, while such figures are serious enough they are much more suggestively alarming when it is borne in mind that in the corresponding period of last year the deaths from zymotic diseases were 36, those from phthisis 112, and those from diseases of the respiratory organs 91, making a total of 203 from chest affections. The state of affairs as disclosed in the report of the medical officer of health of Belfast presented to the city corporation clearly indicates that a very full and exhaustive independent inquiry is needed as to these recurring epidemics of typhoid fever, which, apart from the terrible results to the inhabitants themselves, are doing the city so much injury abroad. Alderman the Right Hon. W. J. Pirrie, D.L., made the very practical suggestion that all personalities and fights between members of the corporation and officials should be set aside and that they should do their best to remedy the important matter before them. If they all tried to follow in the footsteps of those who had made Hamburg clear of the disease (and it was a difficult place to make right) they might be able to avoid the increase of typhoid fever. He advised the chairman to get information as to what had been done in that city. It is said that the Water Commissioners will shortly issue a counter report to the one recently brought out at the instance of the Public Health Committee which suggested the water as being the cause of the present outbreak of typhoid fever.

August 6th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Contagiousness of Alopecia Areata.

THE Academy of Medicine has devoted much time to the consideration of this question, which is an ever-recurring subject of discussion. In a communication read by M. Jacquet a good while ago the opinion was expressed that alopecia areata was not a contagious disease and was not produced by a parasite, but was a trophoneurosis dependent on disordered nutrition, in proof of which the existence of a change in the proportions of the saline constituents of the urine was relied on. On the occasion of the presenting of a communication by M. Dezautière (Le Creusot), M. Hallopeau in his turn read a report in which he showed that of the arguments against the contagiousness of this disease not one possessed any real value, and that, on the other hand, proofs of its transmissibility were plentiful. There were numerous instances quite indisputable of small epidemics of alopecia areata in houses, in villages, in barracks, and elsewhere. The occurrence of epidemics in schools was equally well established; an additional example has been supplied by one observed by M. Dezautière in a school at Le Creusot, where two children who came from Paris suffering from alopecia areata infected successively several of their school-fellows, the teacher, and the children of another school. Moreover, there was no doubt that the clinical phenomena presented by alopecia areata were those of a parasitic disease progressing by successive auto-inoculations. Nevertheless, as the parasite has not yet been identified, and as it was certain that the disease was not transmitted by infection at a distance, being scarcely propagated except by direct contact, it was quite wrong, according to M. Hallopeau, to exclude the victims of this complaint from schools and offices; all that was required was that they should be careful to keep their heads covered, and it would be reasonable to amend the hygienic regulations in this respect. M. Du Castel was of opinion that alopecia areata was much less contagious than was formerly supposed, and it even appeared that there were varieties of it devoid of any contagious quality; but notwithstanding this it was the fact that no sufferers from the disease were allowed to remain in administrative offices, in workrooms, in shops, or in schools. It was desirable, however that less severe measures should be taken with respect to these persons and that they should not be treated as pariahs. M. Chauvel said that in the army there was no doubt about the infectiousness of the disease, regard being had to the numerous epidemics which make their appearance after a man suffering from it has joined. Beyond a doubt there were forms of it which were not contagious, but since no means of distinguishing them have as yet been discovered it was right in all cases to take precautions against the possibility of transmission. M. Fournier believed that it might be positively stated that in the great majority of cases the disease was not contagious; he regarded the measures taken against it as being far too severe, and he compared it with leprosy which, under some circumstances, was not found to be transmitted to those with whom the leper came in contact. It was also necessary to recognise that in addition to true alopecia areata, which was perhaps contagious, there were quite a number of pseudo-alopeciæ (in French "pseudo-pelades") or peladoid conditions which were not alopecia areata at all, particularly those which depended on syphilis. M. Fournier, therefore, agreed with M. Du Castel in thinking that the prospects of young persons suffering from alopecia areata ought no longer to be endangered, as happened too often, by excluding them from schools and colleges.

Actions-at-law brought against Medical Men.

The French law courts habitually treat medical men with extraordinary harshness, examples of which tendency I have frequently had occasion to mention in THE LANCET. Cases of this kind have been increasing for some time past, and the injustice of judgments which have been delivered have at last come to be bewildering; it appears as if the judges were actuated by a positive animosity against medical men and were endeavouring to increase the difficulties of practising a profession the conditions of which become worse every day. Recently a medical man attached to the dental clinic of the Hospital for the Blind requiring cocaine for a small operation on a patient sent a ward attendant to get some from the

hospital dispensary. The bottle brought back by the attendant was labeled "Chlorhydrate de Cocaine," but after the operation the patient suffered from severe sloughing and from necrosis of the jaw, for the bottle contained corrosive sublimate. The patient brought an action against the medical man and the courts held that the latter was responsible; as he argued that he could not analyse the contents of the bottle before the operation, that the bottle came from the dispensary with a label in due form, and that such an interpretation of the law would make it impossible for any medical man ever to perform a surgical operation, the judgment stated that the medical man had a simple way of avoiding the mistake—namely, by going to the dispensary for the drug himself. One is lost in astonishment at such decisions, the effect of which is far-reaching because the public begin to perceive that in taking legal proceedings against medical men they will always be at an advantage and are sure of being listened to by the judges. For instance, not long ago a medical practitioner was fetched to a young man by the prospective mother-in-law of the latter, and as he was returning home accompanied by her she asked him what was the nature of her son-in-law's illness. Having replied that it was tuberculosis he was subsequently proceeded against by the patient and compelled to pay a heavy penalty. A patient who had been treated in hospital for a fracture of the leg is now bringing an action against the surgeon on the plea that the usefulness of his leg has not been fully regained.

August 5th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Female Medical Students in Germany.

A RECENT number of the *Deutsche Medicinische Wochenschrift* contains some interesting statistics of the female medical students at present attending the German universities. As I have mentioned on a former occasion,[1] the Government is very favourably disposed towards medical study by women. A few years ago there were no female medical students in German universities, and German women desiring to become qualified as medical practitioners had to go abroad, especially to Switzerland, where no distinction was made in the conditions of study on the ground of sex. The principal obstacle to women studying medicine in Germany was first that the entrance examination (Abiturienten-examen) was not open to them because there were no "gymnasia" where females could receive training in classics, mathematics, &c. Moreover, even if they had been admitted to the universities it was of little use for them to study because they were not allowed to pass the medical examinations necessary for qualified practitioners in Germany. Matters have now been altered by the institution of "gymnasin" for the female sex and by a decree of the Federal Council allowing female medical students to present themselves for the State examination even though they may have taken part of their curriculum at foreign universities. The official representatives of the profession constituting the medical chambers disapproved of the admission to medical practice both of women and of male students who had not been educated at gymnasia, because they feared that the accession of these new classes of students would cause overcrowding in the profession. The statistics of female students, however, which have been collected by Professor Eulenburg show that female medical students have not come forward in such numbers as had been anticipated. According to information supplied by all the German universities, that of Munich only excepted, where no particulars were obtained, the total number of female medical students was only 95, of whom 56 were foreigners and 39 were Germans. The greatest number were found in Berlin—namely, 25, of whom 21 were foreigners. Next on the list came Leipsic with 24, of whom 22 were foreigners; then came Freiburg with 18 (including 14 foreigners), Halle with 12 (including nine foreigners), Heidelberg with six, Bonn with five, Breslau with two, Strasburg with two, and Königsberg with one; at the last-mentioned five universities none of the female students were foreigners. The preponderance of the foreign element among the female students is easily explained by the fact that foreign ladies when not wishing to undergo the State examination are admitted to attend the lectures without passing the entrance examination. Many of the German universities have no female medical students at all—for instance, Erlangen, Giessen, Göttingen, Greifswald, Jena, Kiel, Marburg, Rostock, Tübingen, and Würzburg. It is interesting to compare the number of the female medical students in Germany with those attending some of the Swiss universities. Berne University has no less than 188 (of whom one is a German and 180 are Russians), Lausanne University has 61, and Zürich University has 85 (of whom 12 are Germans), so that Switzerland is evidently well patronised by female students. The net result is that the total number of female German medical students is 52, of whom 39 attend German and 13 attend Swiss universities. The increase of future medical practitioners of the female sex when compared with the number of the medical profession in Germany (amounting to 27,374) will therefore not be exceedingly great, and Professor Eulenburg rightly observes that owing to the small number of medical women the representatives of the profession ought not to show any unfriendliness towards them.

[1] THE LANCET, Sept. 8th, 1900, p. 779.

Professor Virchow on the Bacteriology of Tuberculosis.

The Berlin Medical Society met for the last time before the summer holidays on July 25th, Professor Virchow being in the chair. The proceedings were not of general interest and the attendance was very small, as the majority of the members had already left Berlin. At the end of the meeting Professor Virchow instead of delivering the usual valedictory address alluded to the recently-enunciated views of Professor Koch as to the non-identity of tuberculosis in cattle with that affecting the human subject. In his sarcastic style he remarked that he was happy to find that Professor Koch's views had undergone a change and were now in accordance with his own, for he had maintained that the mere presence of the Koch bacillus was not the essential thing in tuberculosis; a tubercle was, in his opinion, a growth with a distinct anatomical structure, and he had always protested against the bacteriologists terming anything a tubercle simply because a Koch bacillus happened to be present. He said that the adherents to Koch's theory had believed his view to be rather old-fashioned, but it did not annoy him to recall to mind that he had sometimes been superciliously treated by the younger bacteriologists. Professor Virchow's ironical words produced a great impression on the meeting.

July 29th.

Obituary.

JOHN SAMUEL SLATER, M.R.C.S. ENG., L.S.A., J.P., MAYOR OF EVESHAM.

THE death is announced, on July 25th, of Mr. J. S. Slater which took place at the comparatively early age of 54 years after an illness of only three days' duration. He received his medical education at St. Thomas's Hospital, where he obtained the gold medal in general distinction and was resident obstetric physician. He settled in Evesham in 1872 and on the retirement of the late Mr. Anthony Martin from practice, due to illness about that time, he joined his son, Mr. A. H. Martin, in partnership and with him he carried on a wide and extensive practice. He was elected a member of the Evesham Town Council in 1879 and last November he was chosen mayor of the borough, an office which he filled with great distinction, so much so that the appointment met with the warmest approval from all sections of the community. In a most eventful year he was always ready to carry out the duties devolving upon him; among these may be mentioned those connected with the death of Her late Majesty the Queen, the proclamation of the King, the reception of the Gloucestershire and Worcestershire Agricultural Society, in the town in June on the occasion of the annual show, which lasted for three days, and also the reception of the local volunteers from South Africa. About five years ago he was placed on the Commission of the Peace for the borough and was very conscientious in the discharge of his magisterial work. Mr. Slater was a man of high principle and honour and was greatly esteemed by all those with whom he

came into contact in the exercise of his profession. He was attacked with acute gastro-enteritis on July 22nd, upon which heart failure supervened. The funeral was of a public nature and references were made to the sad occurrence in all the places of worship in the town. Mr. Slater was twice married and is survived by his widow, one son, and four daughters.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Versiloff, *privat-docent* of Neurology in Moscow.—Professor Karl Langenbuch, surgeon-in-chief to the Lazarus Hospital, Berlin.—Dr. Delpeuch of Paris.—Dr. Marston, a New York orthopædic surgeon.—Dr. Salishcheff, Professor of Surgery in the University of Tomsk.—Dr. Viertel of Breslau, a well-known surgeon whose speciality was diseases of the urinary organs.

Medical News.

VICTORIA UNIVERSITY.—In the Faculty of Medicine the following candidates at examinations held in July were successful:—

FINAL EXAMINATION.

Part I.—Roy Appleton and H. M. Birkett, Yorkshire; Walter Briggs and G. H. Brown, Owens; A. E. Burkhart, Yorkshire; A. G. Christian and J. A. Davenport, Owens; R. T. Dobson, University; J. E. Floyd, W. P. Grant, and P. T. Harding, Owens; J. L. Hawkes and H. E. Heapy, University; James Hindshaw, G. R. Hitchin, Alexander Hodgkinson, C. H. H. Hopwood, Arthur Howard, J. R. Hutchinson, H. L. Jenkins, S. J. C. Johnson, and J. A. Jones, Owens; G. W. N. Joseph, University; R. G. Ladell, Yorkshire; A. W. Latham and G. H. Leigh, Owens; J. A. Longley, Yorkshire; Joseph Longworth, Owens; Percival Pollard, Yorkshire; Arthur Richmond, C. A. Ricketts, W. E. Rothwell, J. A. C. Roy, S. H. Ryan, F. W. Schofield, W. F. Shaw, and A. P. S. Thompson, Owens; Ernest Tinker, Yorkshire; A. E. Townley and P. E. Tylecote, Owens; G. F. C. Walker, University; and T. B. Wolstenholme, M. S. Wood, and W. S. Wrigley, Owens.

Part II.—D. M. Alexander and R. L. Andersen, University; M. B. Arnold, Owens; Herbert Bates, University; A. D. Beckett, Owens; J. L. Beddoes, University; S. B. Brentnall and H. N. Bridge, Owens; Henry Brown, Yorkshire; E. R. Cooper,† J. F. Corson, J. M. Cort, and E. N. Cunliffe,* Owens; S. W. Davies, University; D. J. Ferris, Owens; A. H. B. Fletcher, Yorkshire; F. S. Fletcher, Owens; J. A. C. Forsyth, Yorkshire; Mercier Gamble† and Walter Garstand, Owens; G. W. Gelderd† and V. J. Glover, University; P. H. Green† and J. W. Greenwood, Owens; F. Griffith, University; F. W. Harrowell, Yorkshire; Walter Hickey and W. C. Johnson, Owens; R. J. Jones and R. E. Kelly,† University; James Kemp and Charles Mackey,† Owens; J. C. Mann, University; S. B. Mehta and A. H. Priestley, Owens; T. F. Pugh, University; P. A. H. Radcliffe, Yorkshire; H. H. Rayner, Owens; E. C. Roberts, University; F. M. Rodgers and F. R. Sawdon, Owens; Edwin Saville,† Yorkshire; G. H. Shaw, W. R. N. Smithard, and J. H. Stephens, Owens; W. A. Stott and J. H. Sutcliffe,† Yorkshire; H. G. Tansley,† Owens; A. R. Thompson, Yorkshire; Harold Thorp, R. N. West, H. W. Whiteley, T. B. Williams, and B. M. Wilson, Owens; F. P. Wilson, University; and W. J. Woodyatt and J. G. Woolham, Owens.

* Awarded first-class honours. † Awarded second-class honours.

SECOND EXAMINATION.

A. Anatomy and Physiology.—R. A. H. Atkinson, Owens; J. A. M. Bligh, University; F. L. Boag, Owens; Neville Bradley, University; Archibald Cambell, J. B. Dalton, J. A. Davies, J. P. Garlick, Marshall Hooper, W. H. Judson, F. H. Lacey, A. S. McNeil, W. Y. Martin, Stuart Murray, and C. S. O'Neill, Owens; W. V. Pegler and E. W. Reed, Yorkshire; G. H. H. Russell, Owens; Henry Woods, University; and A. R. Wright and William Wright, Owens.

B. Materia Medica and Pharmacy.—Fred Bailey and F. P. H. Birtwistle, Yorkshire; J. A. Bligh, University; F. L. Boag, Owens; J. L. Brown, University; William Calverley, Catherine Chisholm, Catherine L. Corbett, Francisco da Cunha, J. B. Dalton, G. D. Dawson, H. S. Dixon, R. L. Ferguson, and W. G. Fuller, Owens; F. W. M. Greaves, Yorkshire; A. R. Grisewood and W. L. Hawksley, University; W. H. Hey, Owens; Pantland Hick, University; E. E. Hughes and Ernest Hulmes, Owens; G. H. Joseph and G. J. Keane, University; Lawrence Kilroe, E. C. Lea, and Hector Mackenzie, Owens; James McClellan, University; H. J. Macvean, Yorkshire; W. Y. Martin, Owens; R. H. Mole and L. D. Napier, University; R. N. Porter, Owens; R. B. Radcliffe, Yorkshire; F. G. Ralphs, Owens; J. S. Rowlands, University; G. H. H. Russell, Owens; G. C. Scott, University; J. F. Smith, Owens; J. N. M. Sykes, University; Philip Talbot, F. P. S. Thomas, and Leonard Thorp, Owens; Herbert Tomlin, Yorkshire; T. E. Walker, University; T. W. Walker, Owens; H. W. L. Waller, University; F. J. Walton, Jerry Whitehead, and W. D. Wilkins, Owens.

DIPLOMA IN PUBLIC HEALTH.

W. S. Sinclair, W. H. Waddington, M.B., J. W. Wells, and R. H. Wilshaw, M.B.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the July sittings of the Scottish Conjoint Board held in Glasgow the following candidates passed the respective examinations:—

First Examination—William Noble Walker, James Taylor (with distinction), James Alfred Ashurst, John Macnamara, and Alfred Edwin M'Dougal, all of Anderson's College Medical School, Glasgow; Robert Johnston Crawford, St. Mungo's College, Glasgow; Charles Conway Fitzgerald, Glasgow University; and William John Cogan, William Nicholas Alexander, and Daniel Thomas H. Crowley, all of Queen's College, Cork.

Second Examination, four years' course.—Thomas Marshall Metcalfe, Anderson's College Medical School.

Second examination, five years' course.—William Miller Ramsay, David Haig, James Booth Patterson, Thomas M'Master Glen, and Alexander Glen, all of St. Mungo's College; William Arthur Magill and James Macarthur, both of Queen's College, Cork; Patrick Francis Doorly, Queen's College, Galway; and Cecil James Todd, Durham University Medical School, Newcastle.

Third examination.—Angus M'Innes and Thomas Longmore Ashford, Anderson's College Medical School; Alexander Russell Young, Robert Calder Blyth, David Roberts Williams, and Thomas Weir M'Cubbin, all of St. Mungo's College, Glasgow; David Christie and R. Vithal Khedkar, Grant Medical College, Bombay, and St. Mungo's College, Glasgow; Alfred Edward Griffith, Catholic University, Dublin; Michael David Ahern, Queen's College, Cork; Grace Eleanor Soltau and Constance Muriel Scott, London School of Medicine for Women; Samuel James Mathewson, Queen's College, Belfast; Frederick Herbert Malerby, Mason College, Birmingham; and Arthur G. Jackson, University College, Liverpool.

Final Examination (and admitted Licentiates of the three coöperating authorities).—John M'Intyre, Donald Duff, James Noble, Oliver Scanlan, Robert Wardlaw, Robert Galloway Whitelaw, John Bell Walker, and John Kean, all of St. Mungo's College; Marion Ethel Unwin and Clara Hind, both of the London School of Medicine for Women; Sydney H. Allen, Michael Lyons, and William Alexander Reid, all of Melbourne University; Robert Cooper, Durham University Medical School; John Sykes, University College, Liverpool; Archibald MacMillan, Anderson's College Medical School (with honours); Joseph Dalby Andrews, Yorkshire College of Medicine; and Henry Christian Ernest Quin, Queen's College, Cork.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berne:* Dr. von Zehender, formerly Professor of Ophthalmology in Rostock, has presented his library to the University of Berne.—*Breslau:* Dr. Roland Sticher has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Erlangen:* Dr. Ernst Graser has been offered the chair of Surgery. Dr. Aichel has been recognised as *privat-docent* of Gynæcology.—*Helsingfors:* The Czar has granted the petition of the Senate in favour of the admission of female students to the University.—*Jena:* Dr. Seidel is retiring from the chair of Pharmacology, the lectures in which subject will for the present be given by Professor Stintzing. Dr. J. A. Grober of Berlin has been recognised as *privat-docent* of Internal Medicine.—*Moscow:* Dr. Gulevich of Kharkoff has been appointed Extraordinary Professor of Medical Chemistry; Dr. Karusin has been appointed Professor of Descriptive Anatomy.—*Odessa:* Dr. Medviedeff has been appointed Extraordinary Professor of Physiological Chemistry.—*Paris:* Dr. Landouzy has exchanged his chair of Therapeutics for that of Clinical Medicine.—*Strasburg:* Dr. F. Weidenreich has been recognised as *privat-docent* of Anatomy and Comparative Anatomy.—*Tübingen:* Dr. Albert Dietrich has been recognised as *privat-docent* of Pathological Anatomy.—*Vienna:* Dr. von Widerhofer is resigning his chair of Children's Diseases which has been offered to Dr. Escherich of Gratz. Dr. R. Kraus has been recognised as *privat-docent* of General and Experimental Pathology.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—After the distribution of the certificates and prizes to the St. John Ambulance Association first aid classes held at Assuan, Upper Egypt, among the Englishmen employed at the Great Dam Works by Messrs. John Aird and Co. and the Egyptian Government, Mr. A. T. White, the chief surgeon to Messrs. Aird's Hospital and to the Government, was presented by the members of the class with a carved "Mushrabieh" screen and a case of pipes and gold and amber cigar and cigarette tubes in token of their regard and in appreciation of his services as lecturer to the class. Of this class of 17 members 14 qualified for the certificate of the association and it is the first class held by the association in Egypt. At Assuan, where accidents are so common and so severe, the members have done good work in rendering first aid to those injured by blasting and through accidents with machinery and also to the many cases of heat apoplexy which are bound to occur where Europeans have to work in a heat which has registered not infrequently 122° F. in the shade, and where it is constantly in the daytime from 110° to 112°.—On July 26th, at 41, Belsize-park, Dr. Ford Anderson presented Dr. Edmund Gwynn, on behalf of the

medical practitioners of the neighbourhood, with a pair of silver candelabra and a silver bowl, together with a handsomely bound album with 60 signatures, on the occasion of his retirement from the post of medical officer of health of Hampstead; and on July 24th, at the Hampstead Town Hall, Professor Stokes presented Dr. Gwynn with a set of four silver bowls on behalf of his colleagues on the Hampstead borough council.—After the meeting of the Epsom Board of Guardians held on July 31st, Mr. E. B. Jay, on behalf of past and present members of the Epsom Urban and Rural District Councils and Board of Guardians, presented a silver tray and an illuminated address to Mr. Edward L. Jacob, M.R.C.S. Eng., L.S.A., who has been medical officer of health of the above-mentioned districts for upwards of 27 years.

APOTHECARIES' HALL, IRELAND.—At the annual meeting of the General Council of the Apothecaries' Hall of Ireland convened by the Act of Incorporation, 1791, on August 1st, the following were duly balloted for and elected to hold office for the ensuing year ending July 31st, 1902:—Governor: Mr. George A. Stritch. Deputy-Governor: Dr. Arthur Atock. Directors: Mr. Hugh A. Auchinleck, Mr. John Evans, Mr. William V. Furlong, Dr. J. Adam Johns, Dr. Thomas D. Finucane, Dr. Edward Hanrahan, Mr. Robert Montgomery, Mr. Robert J. Montgomery, Dr. Richard G. O'Flaherty, Mr. James Raverty, Mr. Joseph A. Ryan, Mr. James Shaw, and Mr. Charles R. C. Tichborne. Representative on the General Medical Council: Mr. Charles R. C. Tichborne. Secretary: Mr. Robert Montgomery.

LITERARY INTELLIGENCE.—In order to bring the late Dr. Norman Kerr's valuable and exhaustive work on Inebriety within the reach of the increasing number of those interested in the study of the subject the price of the enlarged third edition has been reduced to 7s. 6d. net. Mr. H. K. Lewis is the publisher.

Parliamentary Intelligence.

HOUSE OF COMMONS.

FRIDAY, AUGUST 2ND.

Medical Examination for the South African Constabulary.

MR. MUNRO FERGUSON asked the Secretary of State for the Colonies whether his attention had been called to the fact that Scottish candidates for the South African Constabulary had to proceed to London for medical examination, and whether, in view of the cost and inconvenience thereby incurred, he would arrange for the necessary facilities for examination being afforded in Scotland.—Mr. CHAMBERLAIN replied: For the drafts which are at present being sent out at the rate of 60 men a month it is not possible to dispense with the attendance of candidates at the London recruiting office, as, apart from the medical examination, it is necessary that they should be seen by the constabulary recruiting officer before being selected. I have sanctioned the grant of an additional sum on attestation in South Africa to selected candidates from Scotland and Ireland towards the expense to which they have been put. No difficulty is experienced in obtaining an ample supply of suitable candidates under the present conditions of recruiting, and so far, I believe, only one actual complaint has been received from Scotland.

The Improvement of Barracks.

Lord STANLEY announced that the War Office had decided to ask Parliament for money for the extension and improvement of many of the barracks in various parts of the United Kingdom.

Burgh Sewerage, Drainage, and Water-supply (Scotland) Bill.

This measure was read a second time and referred to the Grand Committee on Law.

MONDAY, AUGUST 5TH.

The Home Office and Lead-poisoning.

At this sitting of the House, on the vote for the salaries and expenses of the Home Office, several Members, including Sir CHARLES DILKE, Mr. TENNANT, and Mr. JOHN BURNS, called attention to the question of lead-poisoning in various industries and the action of the Home Office in this connexion.—Mr. RITCHIE, in the course of his reply, said that it was matter for congratulation all round to find that the number of lead-poisoning cases in 1900 had considerably decreased, and that the cases of phosphorus poisoning had disappeared. Complaint was made that the Home Office had been extremely slow with reference to the new rules. He assured Members that he had done his best to prevent delay in getting the question adjudicated, but negotiations were going on with the manufacturers at the time he came into office, and the department was not without hope at that time that some agreement might be arrived at. If it had been possible to come to a satisfactory arrangement with the manufacturers it would have been wise to do so rather than postpone dealing with it for so long a time as was involved in the operation of arbitration. Looking at the condition of things at the beginning of the year, he came to the conclusion that, inasmuch as the law did not place on the Home Secretary the ultimate responsibility of deciding the question it was desirable to settle it by a reference to arbitration. There had been some delay in carrying the question to arbitration, but the two arbitrators had been decided upon and also the umpire. Lord James had undertaken at the request of the arbitrators to act as umpire, and although he could not promise any immediate decision he thought that members might rely upon it that no delay would be caused by Lord James if the matter came before him. The manufacturers must also be allowed some time in order to alter their arrangements with a view to carrying out the award. It had been suggested, "Why not let things take their course?" but it was impossible that this matter should be left alone. If the Home Office on the advice of their inspectors were convinced that there remained some room for improvement in the working of this dangerous material by which a still greater reduction could be made in the number of persons killed and permanently injured by this most desolating complaint it would have been most unwise on their part, and indefensible as well, to have allowed the question to rest where it was.

The Fees of Medical Witnesses.

Mr. LAWRENCE, also on the Home Office vote, raised the question of the fees paid to medical witnesses for attendance at police-courts and assizes. It was a question, he said, which had never received adequate consideration. The fees were founded on an Act of 1858. For a police-court attendance in England the fee for a medical witness was 10s. 6d. per day, but even this was not certain, for there were instances where the magistrate had said that he had not the funds with which to make such a payment. When a case was sent to the assizes or the sessions the payment was a guinea for a day's attendance with an allowance if the witness had to remain in the town overnight. A medical man of his acquaintance was offered and refused £2 19s. 6d. for a long day's attendance at the police-court and two other long days at sessions, including his second-class railway fare. For such service a medical man in Scotland would receive six guineas, and an Irish doctor would receive a guinea for every three hours and a couple of guineas for attendance as a witness in an adjoining town. It was an indefensible system and various Home Secretaries had had the matter before them. When the right hon. Member for Fife (Mr. Asquith) was Home Secretary he agreed that the remuneration was inadequate, but he said that an alteration would involve a revision of the whole scale of remuneration for professional witnesses, architects, surveyors, and such like. Medical men, however, invited inquiry, and a return would show that medical men far more than any other professional class figured as witnesses in trials. For a gentleman who had gone through an expensive education, to whom time was money and who in his absence had to pay a locum tenent, the scale of payment was most unfair, and he pressed the consideration of this subject on the Home Secretary.—Mr. RITCHIE replied that he was bound to say that it seemed to him that the fees mentioned by the Hon. Member as given under the existing rules to medical witnesses were not very extravagant. In Scotland, where they were celebrated for their economical administration, the fees given were considerably greater than those which appeared to be given in England. He admitted, also, that the fees were fixed a good many years ago, and that in the interval circumstances had in some degree changed. But while he did not dispute the fact that the amount of remuneration was small, it must be remembered that the cost of prosecutions was great, and that they ought to be extremely careful before they increased it unduly. Moreover, they could not take into account one class of witnesses merely; they must take into account the whole scale, and that was rather a formidable thing to undertake.

TUESDAY, AUGUST 6TH.

The Army Medical Department Report.

Mr. WEIR asked the Financial Secretary to the War Office if he would state when the report of the Army Medical Department for the year 1900 would be issued, and if he would explain the reason for the delay in its publication.—Lord STANLEY replied: As the Indian returns do not reach the War Office until the autumn following the year in question, and then have to be edited, it is never possible to produce the report within 12 months of the period to which it refers. The report for 1900 will probably be published in January, 1902.

Questions about Tuberculosis.

Sir WALTER FOSTER asked the Secretary to the Treasury, as representing the Postmaster-General, whether his attention had been called to the conclusions of the British Congress on Tuberculosis, more especially with regard to the dangers arising from dust and tuberculous sputum, and whether he was aware that uncontradicted statements were made in the State and Municipal Section to the effect that no efficient organisation existed in the Post Office for the disposal of dust and the sputum of members of the staff suffering from tuberculous disease; and whether his attention had been called to the complete measures adopted by the French Postal Department for the disinfection of the offices, the disposal of dust, the treatment of patients, and the prevention of expectoration in the buildings; and whether he would consider the advisability of adopting like measures for the prevention and treatment of tuberculous disease among the members of the staff of the British Post Office.—Mr. AUSTEN CHAMBERLAIN replied: The Postmaster-General has not received any authentic record of the conclusions of the British Congress on Tuberculosis, but he is considering what action it may be desirable for the department to take in regard to the matters referred to.—Mr. FIELD asked the President of the Local Government Board whether the Government had arrived at any decision respecting the appointment of a Royal Commission to inquire into and report upon the tuberculosis question; and, if so, whether it was intended to put some practical representatives of the animal industry upon the Commission, and also representatives of the agriculturalists.—Mr. LOWE said that a decision had not at present been arrived at with regard to the matter referred to by the Hon. Member.—Mr. FIELD asked the Chief Secretary to the Lord Lieutenant of Ireland, whether, in view of the pronouncements recently made by Professor Koch, to the effect that the tuberculosis of bovine animals was not transmissible, or but slightly so, to the human subject, and in view of the confiscations and trouble to which those engaged in the dairy and life-stock industries were being subjected in consequence of the assumption that the milk and meat of tuberculous animals were capable of conveying the disease to human beings, he would cause experiments to be carried out by the Local Government Board, in conjunction with the Department of Agriculture in Ireland, with the object

of setting finally at rest the question as to the transmissibility of bovine tuberculosis to the human race, and thereby either removing the restrictions alluded to or establishing their necessity.—Mr. WYNDHAM replied: This matter is engaging the attention of the two authorities mentioned in the question.—Mr. FIELD asked: Am I to understand that an inquiry of this nature will be made?—Mr. WYNDHAM answered: The two authorities are in conference and I do not know whether they have yet determined whether an inquiry is necessary.

Royal Irish Constabulary and First Aid.

Mr. WYNDHAM, in reply to a question, stated that all recruits in the Royal Irish Constabulary undergo a course of instruction in first aid treatment of the sick and wounded.

THE NEW FACTORY AND WORKSHOP LEGISLATION.

PROCEEDINGS IN THE GRAND COMMITTEE.

The Grand Committee of the House of Commons on Trade at its meeting on Thursday, July 25th, completed the consideration of the Bill of the Government to amend the Factory and Workshop Acts. Several subjects of special interest to medical men were discussed at this meeting.—Mr. TREVELYAN moved the adoption of a new clause designed to prevent women in factories taking away work to do at home within four weeks of their confinement. The hon. Member called the attention of the committee to a report by Miss Deane, factory inspector, in which it was stated that a woman only a few days after her confinement was found washing at home for the laundry at which she was ordinarily employed. The law prevented her working in the laundry but allowed her to take work to her own home, where the conditions were much worse than in the laundry. This, he submitted, was a state of things which ought to be stopped.—Mr. RITCHIE, however, opposed the clause. The effect of it, he said, would be to prevent women doing any work, no matter how light, for four weeks after their confinement. He agreed that women so circumstanced should not overwork themselves, but he thought it would be a great hardship upon many of them if they were prevented by law from doing any work at all, because it might seriously interfere with their means of livelihood. —The Committee negatived Mr. Trevelyan's proposal without a division.—A new clause, of which notice had been given by Mr. JOHN BURNS, saying that "after the first day of January, 1904, an underground kitchen of any hotel or restaurant shall not be used for the cooking or preparation of food for sale," was ruled out of order by the CHAIRMAN of the Committee.—Sir FORTESCUE FLANNERY moved to insert in the Bill a clause in these terms—viz.: "The Secretary of State for the Home Department may by order make regulations for the better investigation bacteriologically of anthrax disease."—The CHAIRMAN ruled the clause out of order as proposing something outside the scope of factory legislation.—Sir FORTESCUE FLANNERY pointed out that it dealt with a disease acquired only in factories, and Sir CHARLES DILKE reminded the Chairman that anthrax was specially named in connexion with other highly dangerous diseases in the Factory Act of 1895.—Mr. RITCHIE said it was perfectly true that anthrax came within the purview of the Home Office, but this clause proposed to convert the Home Office into an investigating department for which it had no sort of equipment.—After some further debate, Sir FORTESCUE FLANNERY altered the form of his proposed clause, making it read, "The Secretary of State for the Home Department may, by order, make regulations as to the reporting by factory inspectors and surgeons of cases of anthrax disease," and the CHAIRMAN allowed him to move it in this form. The hon. Member explained that the employers and the employed who were concerned in this matter were agreed that there should be better facilities for the investigation of this terrible disease and they had adopted a form of rule. Medical opinion, however, had not approved that form of rule. Medical opinion was that regulations had better be left to the discretion of the Secretary of State, and now all three interests were in agreement that the Secretary of State should undertake this duty.—Mr. RITCHIE said that if he did not accept this clause it was not because he disagreed with his hon. friend as to the seriousness of anthrax and the necessity for the Secretary of State taking adequate means to endeavour to deal with it, but it was because all the powers proposed were already in the hands of the Secretary of State. There was no need for regulations as to reporting by officers who were the servants of the Department. All the Secretary of State had to do was to give instructions to these officers and the thing would be done.—Mr. LOUIS SINCLAIR thought that if there were a statutory obligation to have these cases reported there would be a better chance of a proper inquiry.—Mr. JOHN BURNS said that he objected to any one disease being singled out for special treatment in an Act of Parliament.—Mr. TAYLOR said that this disease was specially obscure and specially dangerous and in his opinion it was worthy of, and required, special investigation.—Sir CHARLES DILKE said he thought that there was a grievance in connexion with this matter. A case had been made out, not against the present Home Secretary but against the Home Office, of not having done all that might have been done. But the matter was one of administration rather than legislation, and he thought an assurance from the right hon. gentleman would meet the case.—Mr. RITCHIE, in response to this suggestion, said that the committee might rest assured that the Home Office were quite alive to the extreme gravity of this disease and to the responsibilities which rested upon them in connexion with it, and they might rely upon it that nothing would be wanting on his part to endeavour to deal successfully with it. Further, he would be glad to put himself in communication with the Local Government Board to see whether they had any suggestions to offer.—Sir FORTESCUE FLANNERY, accepting this assurance, withdrew his proposed clause.—Captain JESSEL put forward a proposal to require the chief inspector of factories to send to the medical officer of health of the district a notice of cases of anthrax and certain other diseases, but the HOME SECRETARY opposed it as involving unnecessary trouble upon the chief inspector of factories and it was not pressed.

The amending Bill which has been the subject of so much discussion before the Grand Committee and the Consolidating Bill have been embodied in a single measure of 153 clauses and seven schedules, and it is this measure which will be discussed in the House of Commons on the report stage. It embodies the whole of our factory and workshop legislation.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

BUTLER, WILLIAM, M.B. Glasg., C.M., D.P.H., R.C.P.S. Lond., has been appointed Medical Superintendent, Isolation Hospital, Willesden, vice D. S. Skinner, M.D., resigned, and Assistant Medical Officer of Health to the Willesden Urban District Council.

GOUGH, J. H., F.R.C.S. Edin., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory Acts for the Torquay District of Devonshire.

HASWELL, W. C., M.B., B.S. Durh., has been appointed Certifying Surgeon under the Factory Acts for the Flaxton Rural District of the North Riding of York.

MACNAIR, NORMAN, B.S., M.D. Glasg., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Extra-Dispensing Physician to the Glasgow Royal Infirmary.

PATRICK, R., M.D. Durh, M.R.C.S., L.R.C.P. Edin., has been appointed Certifying Surgeon under the Factory Acts for the South-east Bolton District.

PEARSON, H. CARDEN, M.B., F.R.C.S. Edin., has been appointed Surgeon to the Darlington Hospital.

TURNER, B. R., M.B., B.S. Camb., has been appointed Certifying Surgeon under the Factory Acts for the Oundle District of Northants.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM CITY ASYLUM.—Senior Assistant Medical Officer, also Junior. Salaries respectively £180 and £130 per annum, with board, apartments, and washing.

BRADFORD ROYAL INFIRMARY.—Dispensary Surgeon, unmarried. Salary £100 per annum, with board and residence. Also Junior House Surgeon, unmarried. Salary £50 per annum, with board and residence.

BRECON INFIRMARY.—Resident House Surgeon, unmarried. Salary £100 per annum, with furnished apartments, board, and attendance.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon. Salary £100, with board, residence, and washing.

DEVON COUNTY ASYLUM, Exminster.—Third Assistant Medical Officer. Salary commencing at £125 per annum, and increasing at the rate of £10 per annum to £155, with board, residence, &c.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £20 per annum, with furnished apartments, board, and washing.

DISTRICT HOSPITAL, West Bromwich.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

EASTERN COUNTIES' ASYLUM FOR IDIOTS, IMBECILES, AND THE FEEBLE-MINDED, Colchester.—Resident Medical Attendant, unmarried. Salary £100 per annum, with furnished apartments, board, and washing.

EAST SUFFOLK AND IPSWICH HOSPITAL.—Second House Surgeon, unmarried. Salary £30 per annum, with board, lodging, and washing.

ESSEX AND COLCHESTER HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and residence.

FULHAM INFIRMARY, St. Dunstan's-road, Hammersmith, W.—Locum Tenent for four weeks. £3 3s. per week, with board, apartments, attendance, and washing.

GENERAL INFIRMARY, Leeds.—Assistant Resident Medical Officer for six months. Salary at rate of £100 a year.

HALIFAX WORKHOUSE HOSPITAL, Salterhebble.—Medical Officer. Salary £105 per annum.

HULL ROYAL INFIRMARY.—Casualty Officer. Salary £60 per annum, with board and lodging.

KENT AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 a year, with board and lodging.

LEWES DISPENSARY AND INFIRMARY AND VICTORIA HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with apartments, board, and attendance.

LIVERPOOL INFIRMARY FOR CHILDREN, Myrtle-street.—Assistant House Surgeon for six months. Salary £25 for the six months, with board and lodging.

MANCHESTER ROYAL EYE HOSPITAL.—House Surgeon.

NORTH LONDON HOSPITAL FOR CONSUMPTION, Hampstead.—Junior Resident Medical Officer for six months. Honorarium at rate of £60 per annum.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, increasing £10 every year, with furnished apartments, attendance, light, and fuel.

OWENS COLLEGE, Manchester.—Junior Demonstrator in Physiology. Salary £100, rising to £150 per annum.

PLYMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, rising to £200, with apartments, board, and washing.

PRESTON ROYAL INFIRMARY.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing.

ROYAL BOSCOMBE AND WEST HANTS HOSPITAL, Bournemouth.—House Surgeon. Salary £30 per annum, with board, lodging, and washing.

ROYAL LANCASTER INFIRMARY.—Assistant House Surgeon, single. Salary £60 a year, with residence, board, attendance, and washing.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing. Also Dispenser. Salary £60 per annum, with board, rooms, and washing.

ROYAL SURREY COUNTY HOSPITAL, Guildford.—Assistant House Surgeon. Salary £75, with board, residence, and laundry.

SALOP INFIRMARY, Shrewsbury.—House Surgeon. Salary £100 per annum, with board, washing, and residence.

STAFFORDSHIRE COUNTY ASYLUM, Stafford.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, attendance, and washing.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

SUSSEX COUNTY HOSPITAL.—Surgeon and Assistant Surgeon.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Assistant Resident House Surgeon. Salary at the rate of £60 per annum, with board, lodging, and laundry.

TOXTETH PARK, WORKHOUSE AND INFIRMARY, Liverpool.—Resident Medical Officer. Salary £100 per annum, with board, washing, and apartments.

WEST AFRICA.—Three Medical Officers to accompany Railway Survey Parties. Salaries £40 per month, plus allowances.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary £75 per annum, with board, residence, &c.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Assistant House Surgeon. Honorarium at the rate of £75 per annum will be given. Board, lodging, and washing provided. Also Assistant House Physician. Honorarium at the rate of £75 per annum will be given. Board, lodging, and washing provided.

WOLVERHAMPTON EYE INFIRMARY.—House Surgeon. Terms, £70 per annum, rooms, board, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory Acts at Basingstoke and at Croydon.

Births, Marriages, and Deaths.

BIRTHS

ALLEN.—On July 31st, at Hirzel House, Guernsey, the wife of James Davison Colquhoun Allen, M.B. Edin., of a son.

BANNERMAN.—On July 29th, at High Wycombe, the wife of G. D. K. Bannerman, M.R.C.S., L.R.C.P. Lond., of a daughter.

COWAN.—On the 4th inst., the wife of Horatio Cowan, M.B., C.M., 32, Fitzroy-square, W., of a son.

GEDDES.—On the 5th inst., at Winterton, Ferryhill, Co. Durham, the wife of J. W. Geddes, M.B., C.M., of a daughter.

GUNDLACH.—On July 26th, at Holmedale, Fletching-road, Clapton, N.E., the wife of J. Gundlach, M.R.C.S., L.R.C.P., of a daughter.

LONG.—On July 31st, at The Beeches, Greenodd, Ulverston, the wife of Frank Thorby Long, M.R.C.S., L.R.C.P., of a daughter.

MUNDAY.—On July 30th, at the Royal Marine Infirmary, Plymouth, the wife of Surgeon Munday, R.N., of twin daughters.

OGDEN.—On July 30th, at Sandyford-road, Newcastle-on-Tyne, the wife of Ogden Watson Ogden, M.D., of a son.

PORTER.—On July 21st, at Gower-street, the wife of Robert Porter, M.R.C.S., &c., of a daughter.

RUST.—On August 1st, at 30, St. Mary's-road, Higher Crumpsall, Manchester, the wife of John Rust, M.R.C.S., L.R.C.P., of a son.

STABB.—On July 30th, at Harleston, Torquay, the wife of W. Wilking Stabb, M.D., of a son.

SWALLOW.—On August 2nd, at Taunton House, Clapham-road, S.W., the wife of Allan J. Swallow, M.B., B.S., of a daughter.

WHITE.—On July 26th, at Vanbrugh-park, Blackheath, the wife of Finch White, M.R.C.S., L.R.C.P. Lond., of a son.

MARRIAGES.

CALVERLEY—DOUËT.—On July 27th, at St. John's, S.E., Ernest Joseph Goodfellow Calverley, M.B., B.S. Lond., M.R.C.S., L.R.C.P., of Claremont House, Folkestone, to Evelyn, daughter of E. Douët, Esq., of St. John's.

DARBYSHIRE—WORLEY.—On August 1st, at St. John's Church, Perth, W.A., by the Right Rev. the Bishop of Perth, Douglas Edward Darbyshire, M.B., L.R.C.P., M.R.C.S., second son of Edward Darbyshire of Norwood, late of Liverpool, to Florence, second daughter of William Charles Worley, L.R.C.P., M.R.C.S., of Greenlanes, N.

DONALD—RENNER.—On the 6th inst., at St. Paul's, Winlaton-on-Tyne, by Rev. Arthur Jones, M.A., rector, David Donald, L.R.C.P., L.R.C.S. Edinburgh, L.F.P. & S. Glasgow, to Bessie, daughter of the late Francis T. Renner, Newbiggin, Northumberland.

HOWARD JONES—PEACOCK.—At Brent, by the vicar, Rev. H. Speare Cole, John Howard Jones, M.R.C.S. Eng., L.R.C.P. Lond., of Polyphant, Launceston, to Blanche Evelyn Gladys, youngest daughter of E. B. Peacock, late Indian Civil Service, and granddaughter of the late Sir Barnes Peacock. Indian papers, please copy.

LYLE—SELFE.—On July 31st, at Holy Trinity Church, Blackheath-hill, by the Rev. S. F. Hooper, rector of Lydlinch, Dorset, assisted by the Rev. R. Bayne, M.A., vicar, Herbert Willoughby Lyle, M.D. London, M.R.C.S., F.Z.S., elder son of Thomas Lyle, M.A., of the Board of Education, to Elizabeth Ada, the eldest daughter of James D. Selfe, of Blackheath Rise.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE DUTIES OF A MEDICAL OFFICER OF HEALTH AND HIS RESPONSIBILITIES.

AT the recent Warwick Assizes, before Mr. Justice Phillimore and a jury, Robert Clarke, a farmer, of Benhill, Atherstone, sued Robert Mears, M.R.C.S. Eng., L.R.C.P. Edin., medical officer of health of the Atherstone Rural District Council, to recover damages for slander. Counsel for the plaintiff put in a letter written by the defendant on April 21st, 1900, and containing the passage: "It has come to my knowledge that tuberculosis to a serious extent is prevalent among your cows. As medical officer of health, and pending the meeting of the district council, I must warn you to discontinue the sale of milk until a veterinary certificate of the freedom of your cattle from tuberculosis has been produced." Clarke gave evidence that he had acted upon the letter and discontinued the sale of milk, whereby he alleged that he suffered damage. He declared that tuberculosis had not existed among his cattle; and the gist of the action was to show that the defendant had not ascertained that his facts were accurate before he wrote the letter which had caused the plaintiff pecuniary loss. The plaintiff, in answer to the judge, said that he took the letter to be a definite order from the council, wherefore he had acted upon it, although he knew his cattle to be free from tuberculosis. Various witnesses gave evidence that they had bought cattle from the plaintiff which were not tuberculous, and one of these made the somewhat extraordinary statement that he had bought dead cows from Clarke which were perfectly healthy—"they had died from weakness." William Charles Ison, a veterinary surgeon who had been called in to treat one of plaintiff's cows, said that he had made no examination of the cattle for tuberculosis, but that all the cattle were poor, especially two of them. A diagnosis of tuberculosis had been present in his mind, but he did not in words suggest that the cattle were so affected. The defendant gave evidence that he had heard from the son of the veterinary surgeon that his father considered that Clarke's cattle were tuberculous. Upon this information, which he considered trustworthy, he wrote the letter complained of. He did not see Clarke or go to the farm before writing the letter; as a matter of fact he had no power to do so without an order from the district council. He did not think that plaintiff would take the letter as an order unless he were conscious of the presence of tuberculosis. Various witnesses gave evidence as to the poor condition of Clarke's cows. Mr. Ison, jun., spoke of visiting the farm with his father when he saw two cows that he considered tuberculous and which he suggested should be destroyed. The jury agreed that the defendant reasonably believed that tuberculosis existed among the plaintiff's cows to a serious extent. This, said the judge, was equivalent to giving a verdict for the defendant and judgment was given accordingly with costs and certificate for a special jury.

On the evidence the jury could have come to no other conclusion. Numbers of witnesses, some of them being called for the plaintiff, deposed to the poor condition of the cows, and one witness actually said that he had bought dead cows from Clarke which, though perfectly healthy, had died from weakness. The younger veterinary surgeon, who had actually seen the cattle, believed that two at least were tuberculous; while a similar diagnosis was present to his father's mind. The defendant, it seems to us, was quite justified in writing as he did on such information. The future health of the neighbourhood is in his care. The infant mortality is high and is partly attributable to tuberculosis. He believed honestly and on good *primâ-facie* grounds that he had found a focus of the disease, and he took the only immediate step in his power to prevent its spread. We congratulate him upon the verdict which received a marked endorsement from the judge. The whole story, by the way, furnishes one more instance of how the duties of a medical officer of health bring him into conflict with his neighbours, and therefore one more argument for putting medical officers of health into such a position that they will be independent of private practice.

AN OBNOXIOUS BUSINESS.

To the Editors of THE LANCET.

SIRS,—Permit me to call your attention to the recent method now being adopted in country towns and villages for the spread of disease and the dissemination of a most dangerous source of evil, thereby causing the pure country air to be polluted with obnoxious smells to the danger of the public health. The recent boom in the manufacture of bricks has caused a great many more brickfields to be opened for their manufacture, and where land could be obtained near a railway-station brickyards on a large scale have been introduced in the locality through the facility of sidings. Railway companies are only too glad to encourage this branch of industry and are continually carrying truckloads of refuse from large towns to these new enterprises. The stench arising from this filth is simply abominable and may be noticed at the sidings of several railway-stations which could be named. This refuse is

much cheaper to the brickmaker than screened ashes which were formerly used. Then there is the carting of the refuse through the roads and streets where houses are closely built. Even in this town, during hot weather especially, carts may be seen loaded with this filth covered on top with a bit of canvas to prevent the wind blowing it into the gardens as they pass along, and people may be seen with handkerchiefs to their noses as they pass the carts. Another objection is the burning of this filthy rubbish close to the dwelling-houses in the poorer districts—even within 100 yards of a large local school where about 300 children may be seen playing about. If this is to continue the spread of diphtheria, measles, and other complaints must soon be alarming, as the inhalation of such obnoxious smells must result in much illness. Surely immediate steps should be taken to stop this nuisance, and I trust that you will use your powerful influence in drawing the attention of medical men to the matter.

I am, Sirs, yours faithfully,

Horsham, July 31st, 1901. WILLIAM BUCK.

*** We sympathise with our correspondent in his hearty dislike to the smell of brick-manufacturing, but pathology does not bear out his apprehension of a spread of diphtheria or measles in the neighbourhood of brickfields.—ED. L.

WHITE PRECIPITATE IN INFANTILE DIARRHŒA.

To the Editors of THE LANCET.

SIRS,—Recently in attending at a coroner's court I heard the evidence of a medical man to the effect that he had prescribed for the subject of the inquiry—an infant, aged five months—a mixture of liq. hydrarg. perchlor. with aromatic spirit of ammonia. Unless my chemistry is at fault this combination would produce "white precipitate." It may be that my therapeutic knowledge is "behind the times" and that this is the most "up-to-date" agent in the treatment of infantile gastro-enteritis, but till now I believed hydrargyrum ammoniatum to be an *irritant* poison. Times change and methods of treatment with them and this may be a useful innovation. I should be glad to know if any of my professional brethren have experience of it.

I am, Sirs, yours faithfully,

August 5th, 1901. EDWIN T. ENSOR, M.D.

PUBLICITY.

WE have had our attention called by more than one correspondent to the following newspaper paragraphs during the week:—

> Dr. and Mrs. Fenton have left 27, George-street, Hanover-square, for Recess, Connemara. *Daily Telegraph*, August 2nd.

> Dr. T. Miller Maguire wishes it to be known that he will remain at 12, Earl's-court-square throughout the summer, and will be glad to see his clients daily from half-past 11 till half-past one o'clock, or by appointment at other hours. *Morning Post*, August 3rd.

Our correspondents seem to have thought that the two paragraphs were examples of advertisement by medical men of their private movements. With regard to the second paragraph our correspondents are completely in error. Dr. T. Miller Maguire is not a medical man, and the clients whom he is ready to see by appointment are not patients, but pupils who are being prepared for various examinations. The paragraph concerning Dr. Fenton's holiday arrangements is certainly not one which a medical man should seek to have inserted in the editorial columns of a newspaper. If the information has been published without Dr. Fenton's knowledge he should ask the editor of the *Daily Telegraph* to be more discreet in the future.

THE RE-MAKING OF MATTRESSES.

WE have received a letter which we print below on the subject of the necessity that woollen mattresses should be re-made at reasonable intervals. It is clear enough that the letter is from a layman, and there are sentences and sentiments in it with which we do not agree, but the communication as a whole is valuable. There is no doubt that in England the simple sanitary precaution of re-making the mattress is much neglected even by housekeepers whose care for the hygiene of their households is great and elaborate.

To the Editors of THE LANCET.

SIRS,—I have been greatly interested by the various reports of the proceedings of the Congress held last week in London for the cure of tuberculosis, and although the delegates have gone far in their debate as to preventive means, such as spitting in the streets, &c., yet to my idea they have not gone far enough. The English, though a clean nation, pay no attention to their bedding; they will sleep on their mattresses for years without thinking of having them re-made. As to what their mattresses are made of they are quite indifferent. I am an upholsterer and ignorant of what might be a hotbed for breeding bacilli; I leave that for the doctors to find out whether there is anything in my theory. I will give a few examples of my experience. A few years ago I had the order to make a very sumptuous carved bedstead—the curtains were of brocaded silk—but the lady did not wish me to re-make her bedding as she said it was very comfortable. I had to undo the side of the mattress and found that it was made of what is called "coloured wool." Now coloured wool, which is used largely for cheap bedding, is composed of old woollen rags, such as old clothes, carpets, &c., also the refuse sweepings of the floors, &c., of woollen factories. It goes through a machine called the "devil," but goodness knows whether Old Nick is charitable enough to eliminate the microbes. I argued with the lady but to no purpose. I had it on the tip of my tongue to repeat the rhyme of Margery Daw, but I thought better of it. The lady still sleeps night after night on the same mattress. Another case—a gentleman in the country. His daughter was suffering with a sore-throat. His medical man advised him to send for a specialist. Of course, he condemned the drainage, over which the gentleman spent over £1000. And yet to my knowledge not a single mattress has been re-made in the house for the last 20 years, and the servants' mattresses are a mass of corruption, and it is about the same all over England. The English housemaids do their work in a slovenly manner; the mattresses are hardly ever turned, and as for brushing and airing them that is quite out of the question. Now, what a difference with the French people. Take, for instance, the working-class. They do not lie on shoddy and muck; their bedding is of white wool or horsehair; and you can see in the Faubourgs of Paris, such as Belleville, Grenelles, Montmartre, &c., the bedding airing at the windows; besides which men come round to re-make the mattress, for in France the poorest person would never think of sleeping on a mattress which had not been re-made within two years.

I am, Sirs, yours faithfully,

July 29th, 1901. H. C. R. J.

We do not know if experts in domestic furniture would bear out our correspondent's statements that French bedding is so much superior in make to English bedding, but undoubtedly the French domestic servant is more thorough in her care of sleeping-rooms than is her English sister.

Glasgow.—The matter is one of taste, not of rule, and must be left to our correspondent to decide for himself. The comparison of his institution, doubtless a useful private venture, to King's College, London, does not strike us as happy.

C. E. C.—The matter is one to which we have already called pointed attention. See, for example, an annotation in THE LANCET of Oct. 13th, 1900, page 1088.

Typhoid.—No British university and very few, if any, foreign universities, save the one our correspondent has named, hold out the required facilities.

Wirrimbirchip has not given us sufficient information to make it possible to reply.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

WEDNESDAY (14th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.).

THURSDAY (15th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.),

FRIDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

SATURDAY (17th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.) Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.), Throat, Golden-square (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (12th).—WEST LONDON VACATION POST-GRADUATE COURSE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. McAdam Eccles: The Treatment of Enlarged Glands.

THURSDAY (15th).—WEST LONDON VACATION POST-GRADUATE COURSE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. A. Baldwin: Some Surgical Emergencies and their Treatment.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1901, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1901 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 8th, 1901.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade	Min Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Aug. 2	30·15	NNW	...	121	78	62	62	68	Cloudy
,, 3	30·27	S.W.	...	116	75	59	59	64	Cloudy
,, 4	30·06	S.W.	...	99	70	61	62	64	Cloudy
,, 5	30·04	N.W.	0·07	108	70	60	57	62	Overcast
,, 6	29·80	S.W.	0·02	112	77	55	56	57	Cloudy
,, 7	30·00	W.	...	124	81	56	58	63	Cloudy
,, 8	30·02	W.	...	124	78	61	63	68	Bright

During the week marked copies of the following newspapers have been received:—*Windsor and Eton Express, Leeds Mercury, Bristol Mercury, City Press, Weekly South African News, Yorkshire Post, Mining Journal, Liverpool Daily Post, Southwark and Bermondsey Recorder and South London Gazette, Reading Mercury, South London Chronicle, Bristol Mercury, Epsom Herald, Surrey Advertiser, Hertfordshire Mercury, Dorking Advertiser and County Post, &c., &c.*

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